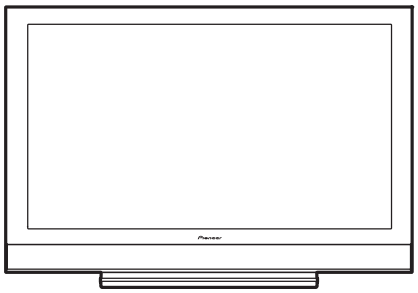
Pioneer sound.vision.soul

Service Manual



PDP-4280HD

ORDER NO.
ARP3439

PLASMA DISPLAY SYSTEM

PDP-4280HD

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
PDP-4280HD	KUCXC	AC 120 V	

For details, refer to "Important Check Points for good servicing".

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ⓒ**PIONEER CORPORATION 2007**

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SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

SAFETY PRECAUTIONS

NOTICE : Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis.

The following precautions should be observed :

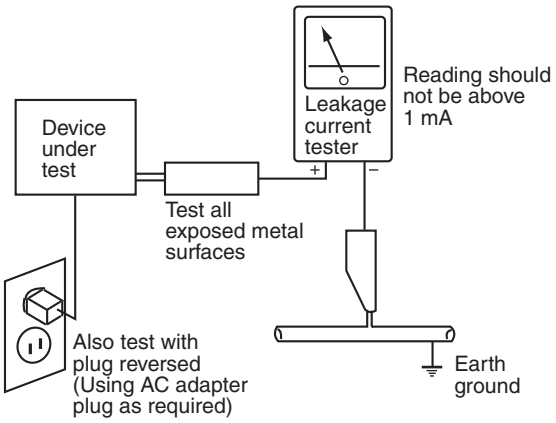
1. When service is required, even though the PDP UNIT an isolation transformer should be inserted between the power line and the set in safety before any service is performed.
2. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
3. When service is required, observe the original lead dress. Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
4. Always use the manufacture's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's. Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
5. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacture has become defective, or inadvertently defeated during servicing. Therefore, the following checks should be performed for the continued protection of the customer and servicetechnician.
6. Perform the following precautions against unwanted radiation and rise in internal temperature.
   - Always return the internal wiring to the original styling.
   - Attach parts (Gascket, Ferrite Core, Ground, Rear Cover, Shield Case etc.) surely after disassembly.
7. Perform the following precautions for the PDP panel.
   - When the front case is removed, make sure nothing hits the panel face, panel corner, and panel edge (so that the glass does not break).
   - Make sure that the panel vent does not break. (Check that the cover is attached.)
   - Handle the FPC connected to the panel carefully. Twisting or pulling the FPC when connecting it to the connector will cause it to peel off from the panel.
8. Pay attention to the following.
   - Pay extreme caution when the front case and rear panel are removed because this may cause a high risk of disturbance to TVs and radios in the surrounding.

Leakage Current Cold Check

With the AC plug removed from an AC power source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (input/output terminals, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 4 MΩ.
The below 4 MΩ resistor value indicate an abnormality which require corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

Leakage Current Hot Check

Plug the AC line cord directly into an AC power source (do not use an isolation transformer for this check).
Turn the AC power switch on.
Using a "Leakage Current Tester (Simpson Model 229 equivalent)", measure for current from all exposed metal parts of the cabinet (input/output terminals, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 1 mA.


Reading should not be above 1 mA
Leakage current tester
+
–
Device under test
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in PIONEER set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.
Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire or other hazards.
Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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1. SERVICE PRECAUTIONS

1.1 NOTES ON SOLDERING

- For environmental protection, lead-free solder is used on the printed circuit boards mounted in this unit.
  Be sure to use lead-free solder and a soldering iron that can meet specifications for use with lead-free solders for repairs accompanied by reworking of soldering.

- Compared with conventional eutectic solders, lead-free solders have higher melting points, by approximately 40 °C.
  Therefore, for lead-free soldering, the tip temperature of a soldering iron must be set to around 373 °C in general, although the temperature depends on the heat capacity of the PC board on which reworking is required and the weight of the tip of the soldering iron.

Compared with eutectic solders, lead-free solders have higher bond strengths but slower wetting times and higher melting temperatures (hard to melt/easy to harden).

The following lead-free solders are available as service parts:
- Parts numbers of lead-free solder:
  GYP1006 1.0 in dia.
  GYP1007 0.6 in dia.
  GYP1008 0.3 in dia.

1.2 CHARGED SECTION AND HIGH VOLTAGE GENERATING POINT

■ Charged Section

The places where the commercial AC power is used without passing through the power supply transformer.
If the places are touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. Therefore, be sure to connect the set via an insulated transformer and supply the current.

1. Power cord
2. AC inlet
3. Power switch
4. Fuse (In the POWER SUPPLY Unit)
5. STB transformer and Converter transformer (In the POWER SUPPLY Unit)
6. Other primary side of the POWER SUPPLY Unit

■ High Voltage Generating Point

The places where voltage is 100 V or more except for the charged places described above. If the places are touched, there is a risk of electric shock.
The VSUS voltage remains for several minutes after the power to the unit is turned off. These places must not be touched until about 10 minutes after the power is turned off, or it is confirmed with a tester that there is no residual VSUS voltage.

If the procedures described in "5.6.1 PANEL DRIVE-POWER ON/OFF FUNCTION" are performed before the power is turned off, the voltage will be discharged in about 30 seconds.

POWER SUPPLY Unit.....(200 V)
42 X DRIVE Assy.....(200 V)
42 Y DRIVE Assy.....(–230 V to 500 V)
42 SCAN A Assy.....(–230 V to 500 V)
42 SCAN B Assy.....(–230 V to 500 V)

: Part is Charged Section.

: Part is the High Voltage Generating Points other than the Charged Section.

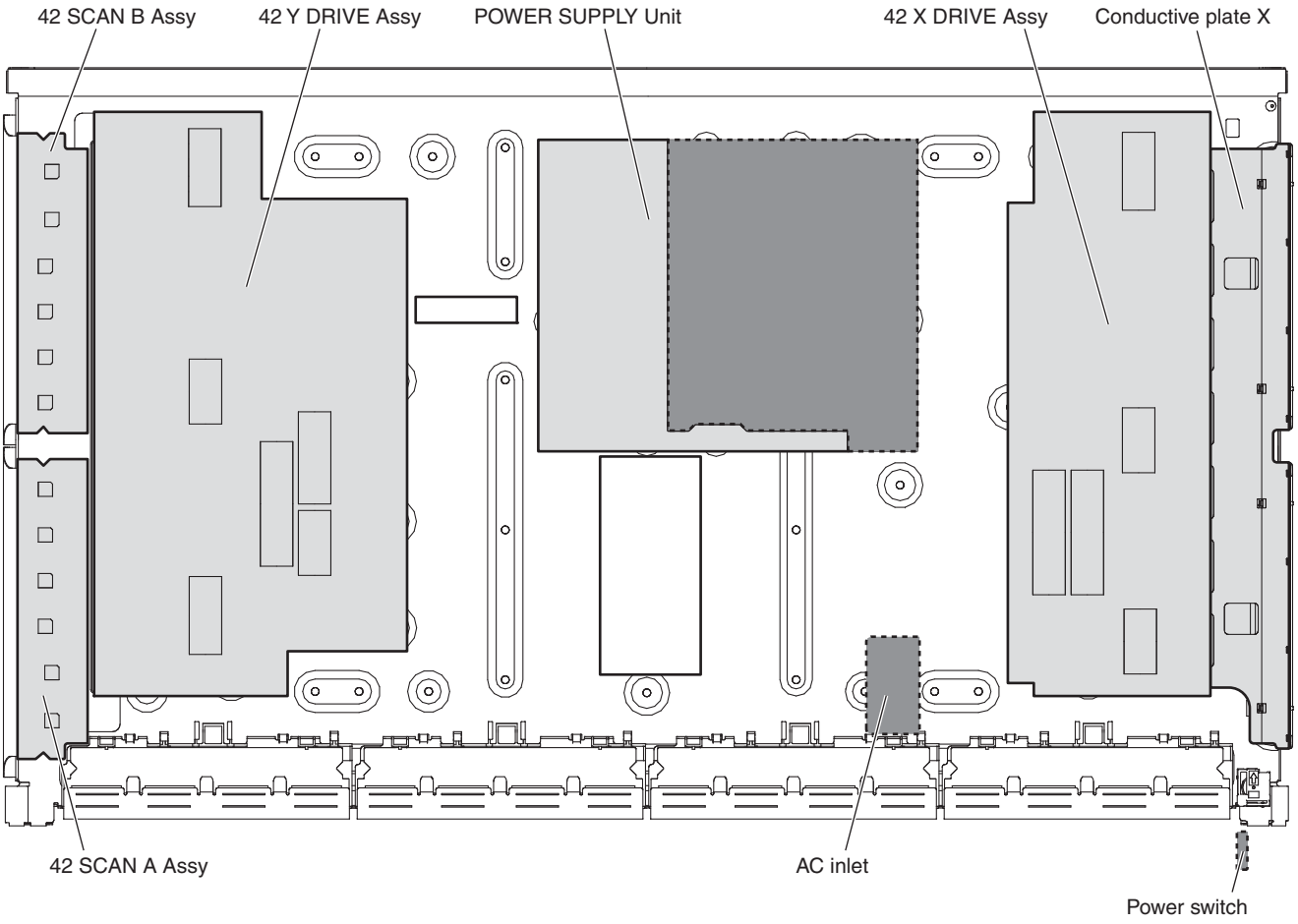
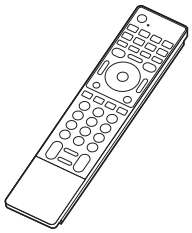


Fig. High Voltage Generating Point (Rear view)

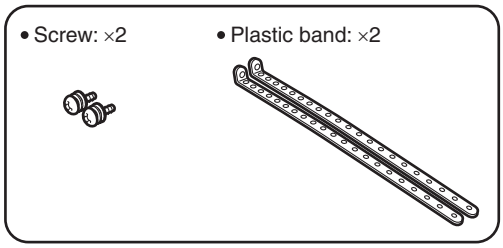
2. SPECIFICATIONS

2.1 ACCESSORIES

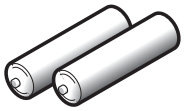
- Remote control unit (AXD1550)



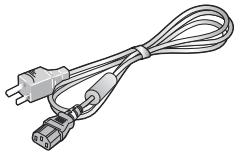
- Band assy (AXY1192)



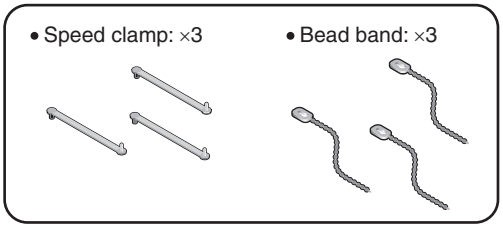
- Alkaline dry cell battery (LR6, AA)



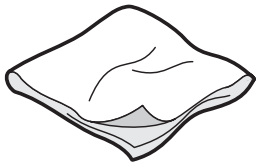
- Power cord (2 m/6.6 feet) (ADG1215)



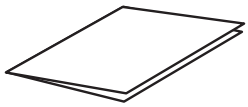
- Binder Assy (AEC1908)



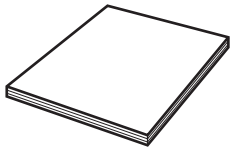
- Cleaning cloth (AED1285)



- Warranty card



- Operating instructions (ARE1471)



2.2 SPECIFICATIONS

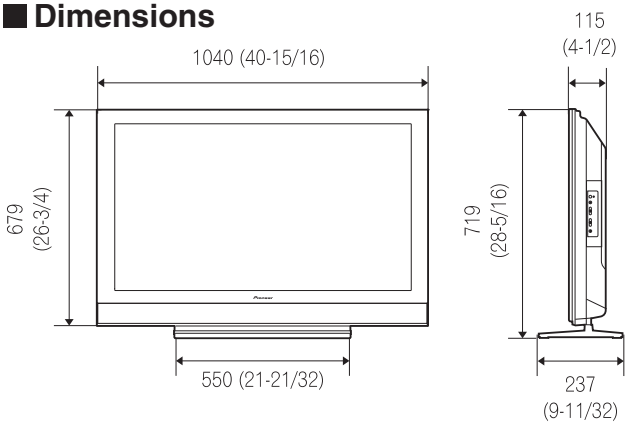
Item			42" plasma display model: PDP-4280HD
Number of pixels			1024 × 768 pixels
Audio Amplifier			17 W + 17 W (1 kHz, 10 %, 6 Ω)
Speakers			Woofer: 4.8 cm x 13 cm cone type Tweeter: 2.5 cm semidome type
Surround System			SRS FOCUS/SRS/SRS TruBass
Power Requirement			120 V AC, 60 Hz, 315 W (23 W Standby)
Weight			Main unit: 29.9 kg (65.9 lbs.) Stand: 1.6 kg (3.6 lbs.) (including bolts) Total: 31.6 kg (69.7 lbs.)
Reception System (Digital)			ATSC Digital TV system
	Circuit type		8VSB/64QAM/256QAM/QPSK demodulation
	Tuner	VHF/UHF	VHF Ch. 2 to 13 UHF Ch. 14 to 69
		CATV	Ch. 2 to 135
	Audio format		Dolby Digital
Reception System (Analog)			American TV standard NTSC system
	Circuit type		Video signal detection PLL full synchronous detection, PLL digital Synthesizer system
	Tuner	VHF/UHF	VHF Ch. 2 to 13 UHF Ch. 14 to 69
		CATV	ANT/CABLE A IN Ch. 1 to 135 ANT B IN Ch. 1 to 125
	Audio multiplex		BTSC system
Terminals	Rear	ANT/CABLE A IN	75 Ω UNBAL, F Type for DTV/VHF/UHF/CATV in
		ANT B IN	75 Ω UNBAL, F Type for VHF/UHF/CATV in
		INPUT 1	S-VIDEO in, VIDEO in, AUDIO in
		INPUT 2	COMPONENT VIDEO in, VIDEO in, AUDIO in
		INPUT 4	HDMI in*, AUDIO in
		PC INPUT	Analog RGB in, AUDIO in
		INPUT 5	HDMI in*, AUDIO in
		INPUT 6	HDMI in*
		INPUT 7	HDMI in*
		AUDIO OUT	AUDIO out (Fixed)
		DIGITAL OUT	Optical
		CONTROL OUT	1
		SPEAKERS	–
		SUB WOOFER	Variable
		CableCARD	Point of Deployment
	Side	INPUT 3	COMPONENT VIDEO in, VIDEO in, AUDIO in
		PHONES	16 Ω to 32 Ω recommended
		USB	USB in**
On-screen display languages			English/French/Spanish

* This conforms to HDMI1.3 and HDCP1.1.
HDMI (High Definition Multimedia Interface) is a digital interface that handles both video and audio using a single cable.
HDCP (High-bandwidth Digital Content Protection) is a technology used to protect copyrighted digital contents that use the Digital Visual Interface (DVI).

** This conforms to USB 1.1 and 2.0 .

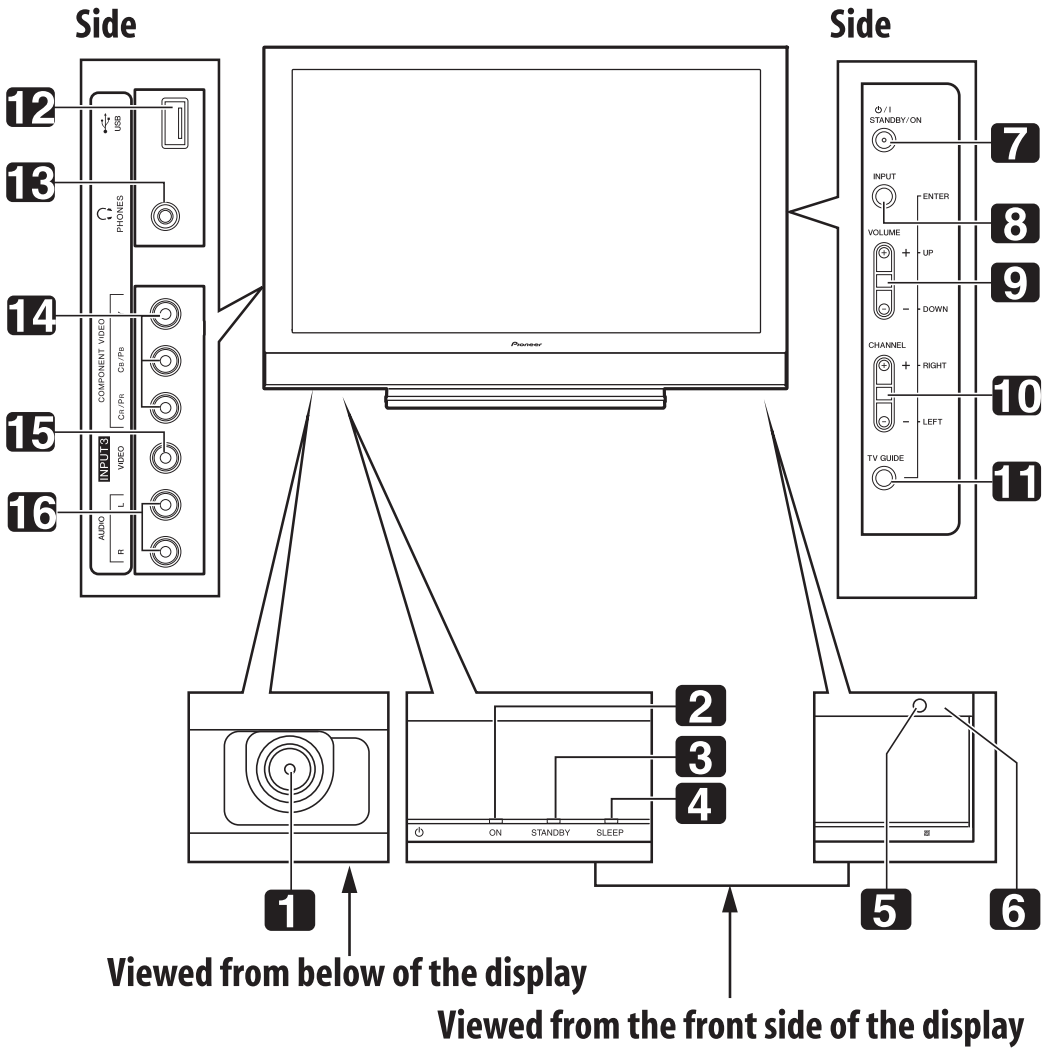
• Design and specifications are subject to change without notice.

Dimensions



2.3 PANEL FACILITIES

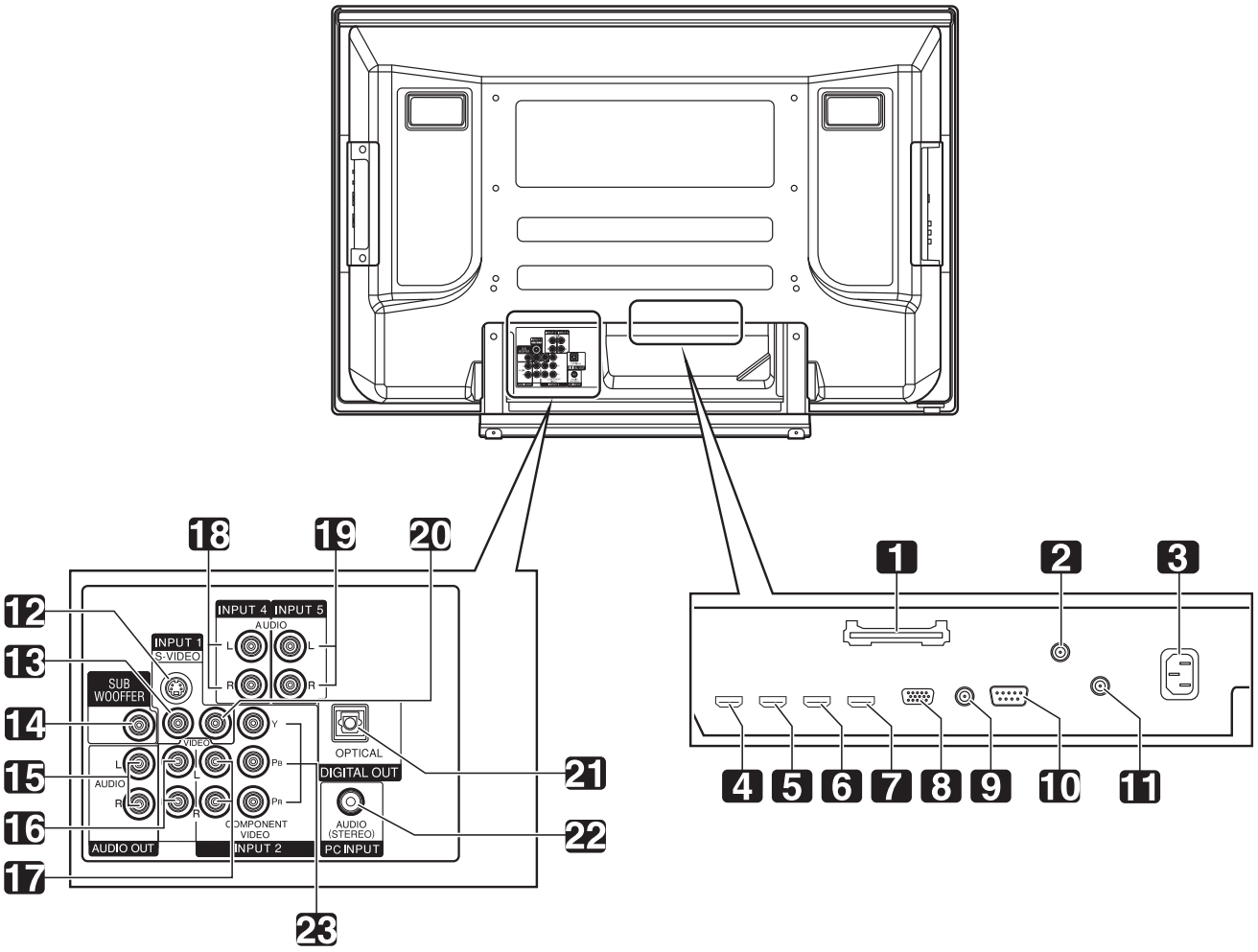
■ Front Section



1 ⏻ button
2 POWER ON indicator
3 STANDBY indicator
4 SLEEP indicator
5 Room Light Sensor
6 Remote control sensor
7 **STANDBY/ON** button
8 **INPUT** button (**ENTER** button*)
9 **VOLUME UP/DOWN** buttons (**UP/DOWN** buttons*)
10 **CHANNEL UP/DOWN** buttons (**LEFT/RIGHT** buttons*)
11 **TV GUIDE** button*
12 USB port
13 PHONES output terminal
14 INPUT 3 terminals (COMPONENT VIDEO: Y, P_B, P_R)
15 INPUT 3 terminal (VIDEO)
16 INPUT 3 terminals (AUDIO)

The buttons with asterisks (*) can operate the TV Guide On Screen™ system.

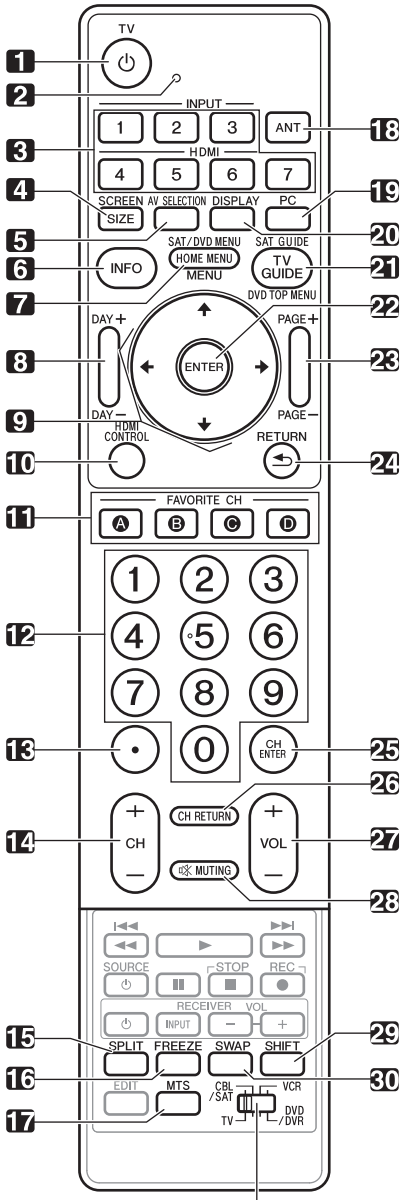
Rear Section



1 CableCARD™ slot
2 ANT/CABLE A IN terminal
3 AC IN terminal
4 INPUT 4 terminal (HDMI)
5 INPUT 5 terminal (HDMI)
6 INPUT 6 terminal (HDMI)
7 INPUT 7 terminal (HDMI)
8 PC INPUT terminal (ANALOG RGB)
9 CONTROL OUT terminal
10 RS-232C terminal (used for factory setup)
11 ANT B IN terminal
12 INPUT 1 terminal (S-VIDEO)
13 INPUT 1 terminal (VIDEO)
14 SUB WOOFER terminal
15 AUDIO OUT terminals (AUDIO)
16 INPUT 1 terminals (AUDIO)
17 INPUT 2 terminals (AUDIO)
18 INPUT 4 terminals (AUDIO)
19 INPUT 5 terminals (AUDIO)
20 INPUT 2 terminal (VIDEO)
21 DIGITAL OUT terminal (OPTICAL)
22 PC INPUT terminal (AUDIO)
23 INPUT 2 terminals (COMPONENT VIDEO: Y, P_B, P_R)

Remote Control Unit

This section describes the functions of the buttons available when the mode switch has been set to TV.



1 **TV** ⏻: Turns on the power to the plasma display or places it into standby mode.
2 Transmission confirmation LED
3 **INPUT**: Selects an input source of the plasma display. ("INPUT 1", "INPUT 2", "INPUT 3", "INPUT 4", "INPUT 5", "INPUT 6" and "INPUT 7")
4 **SCREEN SIZE**: Selects the screen size.
5 **AV SELECTION**: Selects audio and video settings. (AV source: OPTIMUM, STANDARD, DYNAMIC, MOVIE, GAME, USER. PC source: STANDARD, USER.)
6 **INFO**: Displays a channel banner when a TV program is being watched.
When the TV Guide On Screen™ system is in operation, displays information about the currently highlighted channel (if available).
7 **HOME MENU**: Displays the HOME MENU screen.
MENU: Displays a panel menu when the TV Guide On Screen™ system is in operation.
8 **DAY +/–**: Jumps to the next or previous day of program listings in the TV Guide On Screen™ Listing service.
9 ↑/↓/←/→: Selects a desired item on the menu screen.
10 **HDMI CONTROL**: Displays the HDMI Control menu.
11 **FAVORITE CH (A, B, C, D)**:
Selects any of the four preset channels.

While watching, you can toggle the set channels by pressing **A**, **B**, **C** and **D**.
12 **0 to 9**: Selects the channel.
13 **•(dot)**: Enters a dot.
14 **CH +/–**: Selects the channel.
15 **SPLIT**: Switches the screen mode among 2-screen, picture-in-picture, and single-screen.
16 **FREEZE**: Freezes a frame from a moving image. Press again to cancel the function.
17 **MTS**: Selects MTS/SAP or language depending on the program being watched.
18 **ANT**: Selects the antenna (A, B).
19 **PC**: Selects the PC terminal as an input source.
20 **DISPLAY**: Displays the channel information.
21 **TV GUIDE**: Displays the TV Guide On Screen™ system.
22 **ENTER**: Executes a command.
23 **PAGE +/–** (for the TV Guide On Screen™ system): Scrolls the program listing screen vertically.
24 **RETURN**: Returns to the previous menu screen.
25 **CH ENTER**: Executes a channel number.
26 **CH RETURN**: Returns to the previous channel. This button is disabled while the TV Guide On Screen™ system is displayed.
27 **VOL +/–**: Sets the volume.
28 **MUTING**: Mutes the sound.
29 **SHIFT**: Moves the location of the small screen when in the picture-in-picture mode.
30 **SWAP**: Switches between the two screens when in the 2-screen or picture-in-picture mode.

Luminous remote control buttons (main unit only)
All buttons on the remote control unit are luminous and gather and store light. This enables quick access to the desired function when performing operations in dark places.

Note

- When using the remote control unit, point it at the plasma display.

3. BASIC ITEMS FOR SERVICE
3.1 CHECK POINTS AFTER SERVICING

Items to be checked after repair (PDP)

To ensure the quality of the product after repair, check the recommended items shown below:

No.	Procedures	Item to be checked
1	Check if all the symptoms pointed out by the customer have been addressed.	The symptoms in question must not be reproduced.
2	Connect the peripheral equipment.	Connect all external peripheral equipment as originally connected and check if the connections are correct.
3	Check the video and audio.	Tune in to the stations that the customer would normally receive and check if video and audio are normal.
4	Check the buttons and controls.	Use the buttons and controls on the remote control unit and main unit and check if they operate properly.
5	Check the cabinet.	Check for any scratches or dirt that have been made or attached on the cabinet after receiving the product for repair.

See the table below for the items to be checked regarding video and audio:

Item to be checked regarding video	Item to be checked regarding audio
Block noise	Distortion
Horizontal noise	Noise
Dot noise	Volume too low
Disturbed image (video jumpiness)	Volume too high
Too dark	Volume fluctuating
Too bright	Sound interrupted
Mottled color	

3.2 QUICK REFERENCE

Quick Reference upon Service Visit ①
Notes, PD/SD diagnosis, and methods for various settings

Notes when visiting for service

1. Notes when disassembling/reassembling

① Rear case

When reassembling the rear case, the screws must be tightened in a specific order. Be careful not to tighten them in the wrong order forcibly. For details, see "Rear Case" in "7. DISASSEMBLY".

② Attaching screws for the HDMI connector

When attaching the HDMI connector after replacing the Main Assy, secure the HDMI connector manually with a screwdriver, but not with an electric screwdriver. If you tighten the screws too tightly with an electric screwdriver, the screw heads may be damaged, in which case the screws cannot be untightened/tightened any more.

2. On parts replacement

① How to discharge before replacing the Assys

A charge of significant voltage remains in the Plasma Panel even after the power is turned off. Safely discharge the panel before replacement of parts, in either manner indicated below:

A: Let the panel sit at least for 3 minutes after the power is turned off.

B: Turn the Large Signal System off before the power is turned off then, after 1 minute, turn the power off.

For details, see "5.6.1 PANEL DRIVE-POWER ON/OFF FUNCTION".

② On the settings after replacement of the Assys

Some boards need settings made after replacement of the Assys. For details, see "8. EACH SETTING AND ADJUSTMENT".

3. On various settings

① Setting in Factory mode

After a Mask indication into the panel is performed, be sure to set the Mask setting to "OFF" then exit Factory mode.

PD/SD

	Item	No. of LEDs flashing Red	Blue
Panel section	SQ_LSI		Blue 1
	Communication with the module IIC		Blue 2
	DIGITAL-RST2		Blue 3
	Panel high temperature		Blue 4
MTB section	Audio/ Short-circuit SP terminal		Blue 5
	Communication with the Module UCOM		Blue 6
	Main 3-wire serial communication		Blue 7
	Main IIC communication		Blue 8
	Communication with the Main UCOM		Blue 9
	FAN		Blue 10
	Unit high temperature		Blue 11
	Digital Tuner communication		Blue 12
	MTB-RST2/RST4		Blue 13
	Home Media Gallery		Blue 14
	Main EEPROM		Blue 15
POWER		Red 2	
SCAN		Red 3	
SCN-5V		Red 4	
Y-DRIVE		Red 5	
Y-DCDC		Red 6	
Y-SUS		Red 7	
ADRS		Red 8	
X-DRIVE		Red 9	
X-DCDC		Red 10	
X-SUS		Red 11	
DIG-DCDC		Red 12	
UNKNOWN		Red 15	

LED Display Information

① TRAP SW

② Rewriting software

③ PD (2-15)

④ SD (1-15)

⑤ No backup

This indication does not display all LED patterns.
For details, please refer to 5.1.1 LED DISPLAY INFORMATION.

How to locate several items on the Factory menu

{ } : Item on the Factory menu
[ ] : Key on the remote control unit
" " : Screen indication

1. Confirmation of accumulated power-on time and power-on count

Select {INFORMATION} then {HOUR METER}.
(After entering Factory mode, press [⬇] five times.)

2. Confirmation of the Power-down and Shutdown histories

① Panel system

PD: Select {PANEL FACTORY} then {POWER DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER/SET], then press [⬇] three times.)

SD: Select {PANEL FACTORY} then {SHUT DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER/SET], then press [⬇] four times.)

② MTB section

Select {INFORMATION} then {MAIN NG}.
(After entering Factory mode, press [⬇] three times.)

3. How to display the Mask indication

① Mask indication in the panel side

1. Select {PANEL FACTORY} then {RASTER MASK SETUP}.
(After entering Factory mode, press [MUTING] once, press [ENTER/SET], then press [⬇] 8 times.)
2. Press [ENTER/SET], then select a Mask indication, using [⬆] or [⬇].

Adjustments and Settings after replacement of the Assys (Procedures in Factory mode)

1. Digital Video Assy: Transfer of backup data

① Select {PANEL FACTORY}, {ETC}, then {BACKUP DATA}. (After entering Factory mode, press [MUTING] once, press [ENTER/SET], press [⬇] seven times, then press [ENTER/SET].)
② Select {TRANSFER}, using [➡], then hold [ENTER/SET] pressed for at least 5 seconds.
③ After transfer of backup data is completed, {ETC} is automatically selected, and the LED on the front panel returns to normal lighting.

2. MAIN Assy: Execution of FINAL SETUP.

① Select {INITIALIZE} then {FINAL SETUP}, then press [ENTER/SET]. (After entering Factory mode, press [MUTING] three times, then press [⬇] four times.)
② Select "YES", using [➡]. Then hold [ENTER/SET] pressed for at least 5 seconds.
③ After "FINAL SETUP IS COMPLETE" is displayed on the screen, turn the POWER switch of the main unit off.

3. POWER SUPPLY Unit: Clearance of the accumulated power-on count and maximum temperature value

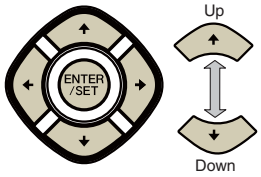
① Select {PANEL FACTORY}, {ETC}, then {P COUNT INFO}. (After entering Factory mode, press [MUTING] once, press [ENTER/SET], press [⬇] seven times, press [ENTER/SET], then press [⬇] six times.)
② Press [➡] to select "CLEAR". Hold [ENTER/SET] pressed for at least 5 seconds. After clearance is completed, "ETC" is automatically selected. Clear the maximum temperature value (MAX TEMP) in the same manner.

4. Other Assys: Clearance of the maximum temperature value

① Select {PANEL FACTORY}, {ETC}, then {MAX TEMP}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [⬇] seven times, press [ENTER/SET], then press [⬇] seven times.)
② Press [➡] to select "CLEAR". Hold [ENTER/SET] pressed for at least 5 seconds. After clearance is completed, "ETC" is automatically selected.

Quick Reference upon Service Visit ②
Mode transition and structure of layers in Service Factory mode

Mode transition in Service Factory mode



- To shift to another mode, press [MUTING].
- To shift to another item in a specific mode, press [⬆] or [⬇].
- To shift to the next nested layer below for an item with a "(+)" indication, press [ENTER/SET]. To return to the next nested layer above, also press [ENTER/SET].

INFORMATION mode
1. VERSION (1)
2. VERSION (2), (3)
3. MAIN NG
4. TEMPERATURE
5. HOUR METER
6. HDMI SIGNAL INFO 1
7. HDMI SIGNAL INFO 2
8. VDEC SIGNAL INFO 1
9. VDEC SIGNAL INFO 2
10. DTV TUNING STATUS 1, 2, 3
11. DTV TV-GUIDE BER
12. DEBUG INFO

MUTING

INITIALIZE mode
1. SIDE MASK LEVEL
2. FINAL SETUP
3. Wide XGA AUTO

MUTING

MUTING

PANEL FACTORY mode
1. PANEL INFORMATION
2. PANEL WORKS
3. POWER DOWN
4. SHUT DOWN
5. PANEL-1 ADJ
6. PANEL-2 ADJ
7. PANEL FUNCTION
8. ETC.
9. RASTER MASK SETUP
10. PATTEN MASK SETUP
11. COMBI MASK SETUP

MUTING

OPTION mode
1. EDID WRITE MODE
2. ANTENNA MODE
3. AFT
4. SYNC DET

Structure of Layers in Service Factory Mode

INFORMATION mode	
├ 1. VERSION (1)	The software versions for each microcomputer
├ 2. VERSION (2)	The Flash memory versions for each device
├ 3. VERSION (3)	The Flash memory versions for each device
├ 4. MAIN NG	The shutdown message ID/event times
│	(Going Clear mode by [ENTER/SET] key)
│ └ 4-1. CLEAR	Select Yes by [➡] key ➡ pushing and hold [ENTER/SET] key
├ 5. TEMPERATURE	The temperature/FAN rotating status/Room Light Sensor
├ 6. HOUR METER	The HOUR METER/P-COUNT information
│ └ 6-1. CLEAR	Select Yes by [➡] key ➡ pushing and hold [ENTER/SET] key
├ 7. HDMI SIGNAL INFO 1	The information of HDMI information files
├ 8. HDMI SIGNAL INFO 2	The information of HDMI information files
├ 9. VDEC SIGNAL INFO 1	The signal information of VDEC
├ 10. VDEC SIGNAL INFO 2	The signal information of VDEC
├ 11. DTV TUNING STATUS 1	Detail information for DTV
├ 12. DTV TUNING STATUS 2	Detail information for DTV
├ 13. DTV TUNING STATUS 3	Detail information for DTV
├ 14. DTV TV-GUIDE BER	For production line use
├ 15. DEBUG INFO	For factory use
PANEL FACTORY mode	Refer to [PANEL FACTORY MODE]
OPTION mode	
├ 1. EDID WRITE MODE	For factory use
├ 2. ANTENNA MODE	For production line use
├ 3. AFT	For production line use
├ 4. SYNC DET	For technical analysis
INITIALIZE mode	
├ 1. SIDE MASK LEVEL	For factory use
│ └ 1-1. SIDE MASK LEVEL	
├ 2. FINAL SETUP	Set to Factory default settings (it should perform after
│ └ 2-1. DATA RESET	replacing a MAIN Assy)
├ 3. HMG/HG SERVICE MODE	Information for a USB device is displayed
│ └ 3-1. MODE SHIFT	
└ 4. Wide XGA AUTO	For technical analysis

Structure of Layers in Panel Factory Mode 1

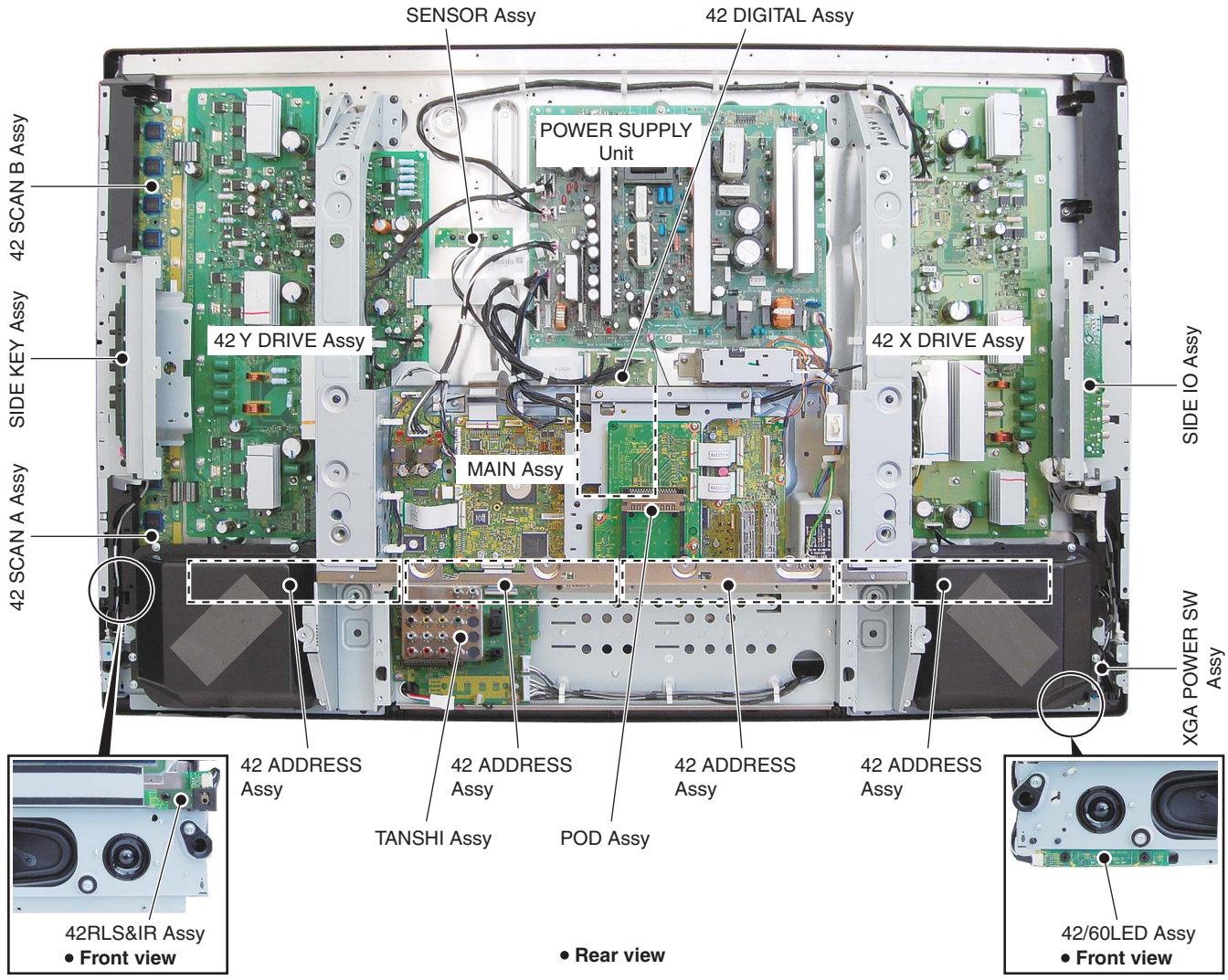
1. PANEL INFORMATION	Version indication of the panel
2. PANEL WORKS	Indications of the accumulated power-on time, pulse-meter count, and power-on count of the panel
3. POWER DOWN	Indication of the Power-down history
4. SHUT DOWN	Indication of the Shutdown history
5. PANEL-1 ADJ (+)	
├ 1. VOL SUS	Settings required after replacement of the panel
├ 2. VOL OFFSET	
├ • • • • •	
├ 8. VOL YNOFS4	
├ 9. RESET1ST_KSB	Modification not required because these items are basically for factory presetting
├ 10. RESET2ND_KSB	
├ • • • • •	
├ 23. YSTL_FMR_HZ	
├ 24. SUS FREQ	For AM noise prevention (Depending on the mode, brightness of the screen changes.) For confirmation of the result of the setting change, the unit must be turned off then back on again.
6. PANEL-2 ADJ (+)	
├ 1. R-HIGH	Parameters for the WB adjustment of the panel, which are required during adjustment after panel replacement
├ 2. G-HIGH	
├ 3 .B-HIGH	
├ 4. R-LOW	
├ 5. G-LOW	
├ 6. B-LOW	
├ 7. ABL	Setting of the power consumption. A setting table is available for each vertical signal.

To "Structure of Layers in Panel Factory Mode 2"

Structure of Layers in Panel Factory Mode 2

7. PANEL FUNCTION (+)	
├ 1. R-LEVEL	Items for use by engineers
├ 2. G-LEVEL	
├ 3. B-LEVEL	
├ 4. ADDRESS L1	
├ 5. ADDRESS L2	
├ • • • • •	
├ 11. ADDRESS U4	
├ 12. STK MODE	
8. ETC (+)	
├ 1. BACKUP DATA	For transferring backup data (after replacement of the DIGITAL Assy)
├ 2. DIGITAL EEPROM	To clear data of the digital video
├ 3. PD INFO.	For clearance of data for the corresponding items. The clearing method is the same: Select "CLEAR", using [➡], then hold [ENTER/SET] pressed for at least 5 seconds. After clearance is completed, {ETC} is automatically selected.
├ 4. SD INFO.	
├ 5. HR-MTR INFO.	
├ 6. PM/B1-B5	
├ 7. P COUNT INFO.	
├ 8. MAX TEMP.	
9. RASTER MASK SETUP (+)	
├ 1. MASK OFF	For use while Raster Mask (full mask) is displayed. Use [⬆] or [⬇] to select the type of mask.
├ 2. RST MASK 01	
≈ • • • • •	
├ 26. RST MASK 25	
10. PATTEN MASK SETUP (+)	
├ 1. MASK OFF	For use while Pattern Mask is displayed. Use [⬆] or [⬇] to select the type of mask.
├ 2. PTN MASK 01	
≈ • • • • •	
├ 50. PTN MASK 49	
11. COMBI MASK SETUP (+)	
├ 1. MASK OFF	For use while Combination Mask is displayed. Use [⬆] or [⬇] to select the type of mask.
├ 2. CMB MASK 01	
≈ • • • • •	
└ 18. CMB MASK 17	

3.3 PCB LOCATION



Note:
The wiring shown in the photo is different from the actual wiring, because the product in the photo is a prototype. Upon servicing, be sure to restore the original wiring of the unit after repair work.

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
NSP		42 ADDRESS ASSY	AWV2451
NSP		42 SCAN A ASSY	AWW1266
		└ IC2801 - IC2806	SN755875PZT-P
NSP		42 SCAN B ASSY	AWW1267
		└ IC2901 - IC2906	SN755875PZT-P
		42 X DRIVE ASSY	AWV2452
		42 Y DRIVE ASSY	AWW1262
		XGA POWER SW ASSY	AWW1261
		42 DIGITAL ASSY	AWW1271
		SENSOR ASSY	AWW1272
⚠		MAIN ASSY	AWV2455
		TANSHI ASSY	AWW1273
		SIDE IO ASSY	AWW1274
		42/60LED ASSY	AWW1276
		42RLS&IR ASSY	AWW1277
		SIDE KEY ASSY	AWW1275
		POD ASSY	AWW1295
⚠		POWER SUPPLY UNIT	AXY1157
		PDP SERVICE ASSY 428	AWU1276

3.4 CLEANING

Name	Part No.	Remarks
Cleaning liquid	GEM1004	Used to fan cleaning. Refer to “10.4 CHASSIS SECTION (1/2)”.
Cleaning paper	GED-008	

A

B

C

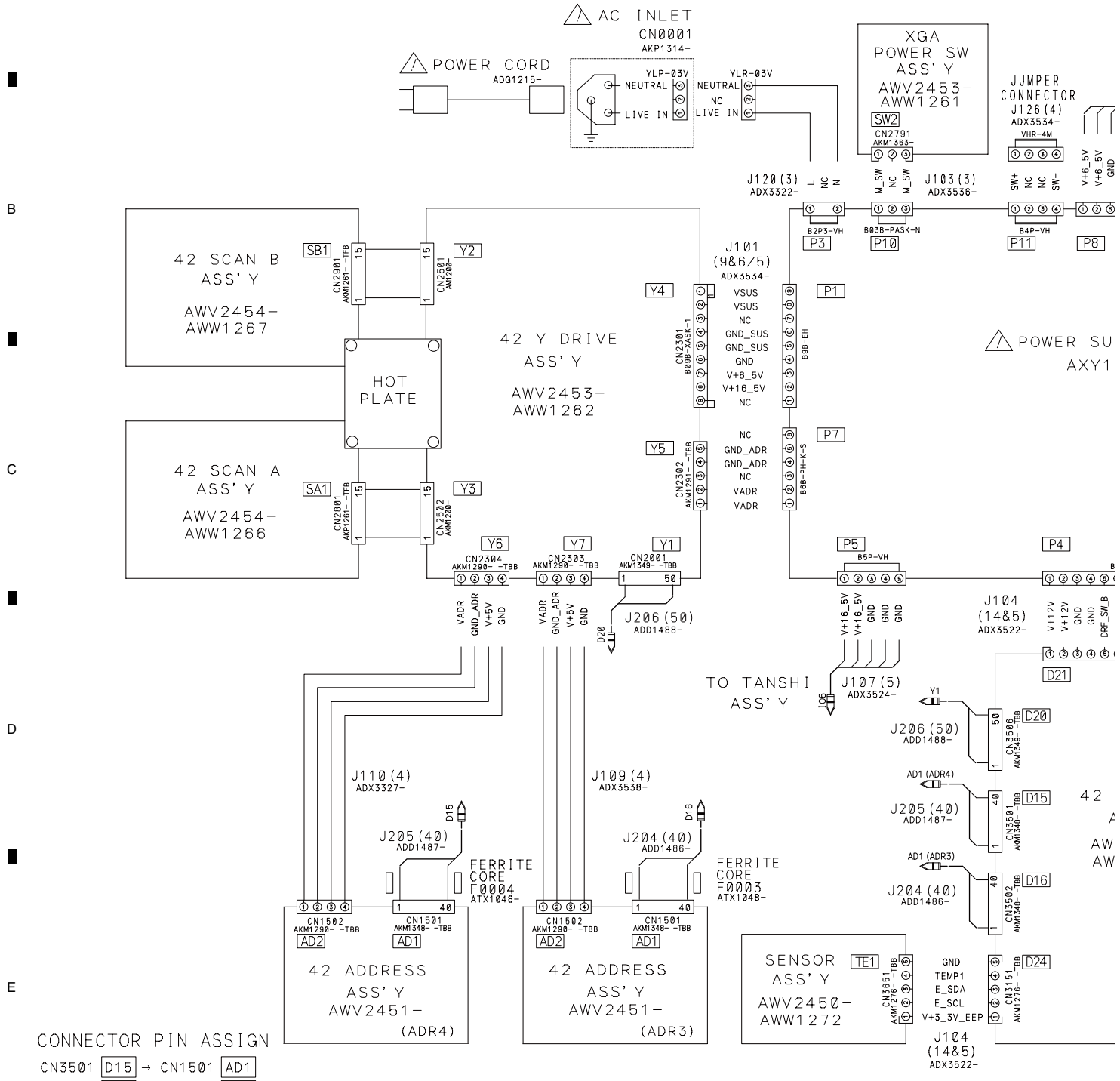
D

E

F

4. BLOCK DIAGRAM

4.1 OVERALL WIRING DIAGRAM (1/2)



CONNECTOR PIN ASSIGN

CN3501 D15 → CN1501 AD1

CN3502 D16 → CN1501 AD1

CN3503 D17 → CN1501 AD1

CN3504 D18 → CN1501 AD1

1→40. NC	21→20. CP
2→39. ADR_PD	22→19. NC
3→38. PSIZE	23→18. GND
4→37. GND	24→17. NC
5→36. V+8V	25→16. CLKN
6→35. V+8V	26→15. CLKP
7→34. GND	27→14. NC
8→33. GND	28→13. GND
9→32. NC	29→12. NC
10→31. AN	30→11. DN
11→30. AP	31→10. DP
12→29. NC	32→ 9. NC
13→28. GND	33→ 8. GND
14→27. NC	34→ 7. GND
15→26. BN	35→ 6. V+3_3V_D
16→25. BP	36→ 5. V+3_3V_D
17→24. NC	37→ 4. GND
18→23. GND	38→ 3. NC
19→22. NC	39→ 2. LS2
20→21. CN	40→ 1. GND

CN2502 Y3 ↓ CN2801 SA1

1. VH	
2. VH	
3. NC	
4. NC	
5. GNDH	
6. SI_R	
7. SI_L	
8. CLR	
9. OC2	
10. OC1	
11. CLK	
12. LE	
13. GNDH	
14. GNDH_R	
15. IC5V	

CN2501 Y2 ↓ CN2901 SB1

1. VH	
2. VH	
3. NC	
4. NC	
5. GNDH	
6. SI_R	
7. SI_H	
8. CLR	
9. OC2	
10. OC1	
11. CLK	
12. LE	
13. GNDH	
14. GNDH_R	
15. IC5V	

CN3505 D19 → CN1001 X1

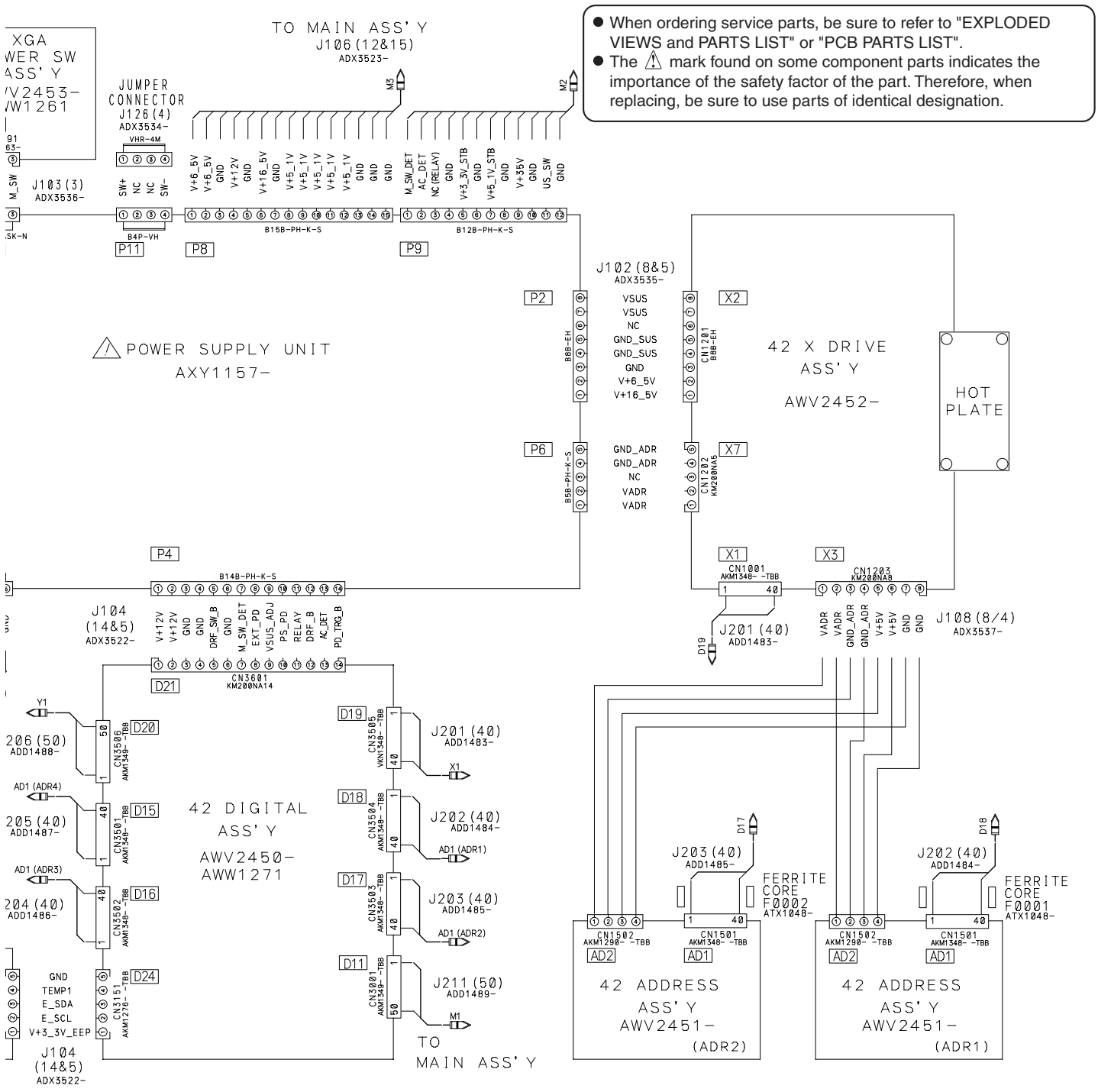
1→40. XCN_PD	21→20. GND
2→39. NC	22→19. XKOFS1_ADJ
3→38. GND	23→18. XKOFS2_ADJ
4→37. XSUS_B	24→17. GND
5→36. GND	25→16. XDRV_PD
6→35. XSUS_U	26→15. XDD_PD
7→34. GND	27→14. PSW2
8→33. XSUS_D	28→13. GND
9→32. GND	29→12. NC
10→31. XSUS_G	30→11. NC
11→30. GND	31→10. NC
12→29. XPRST	32→ 9. NC
13→28. GND	33→ 8. NC
14→27. XKOFS1	34→ 7. NC
15→26. GND	35→ 6. NC
16→25. XKOFS2	36→ 5. NC
17→24. GND	37→ 4. NC
18→23. XSOFT_D	38→ 3. NC
19→22. GND	39→ 2. NC
20→21. SUS_MUTE	40→ 1. XSUS_PD

CN3506 D20 → CN2001 Y1

1→50. YCN_PD	26→25. YKNOFS3
2→49. SCN5V_PD	27→24. YKNOFS4
3→48. SI	28→23. GND
4→47. GND	29→22. YNOFS
5→46. CLR	30→21. YRST_D
6→45. CLK	31→20. YSOFT_G
7→44. GND	32→19. YSOFT_D
8→43. LE	33→18. GND
9→42. OC2	34→17. VOFS_ADJ
10→41. OC1	35→16. VYPRST_ADJ
11→40. GND	36→15. GND
12→39. YSUS_B	37→14. NC
13→38. YSUS_U	38→13. VKNOFS1_2_ADJ
14→37. GND	39→12. VKNOFS3_ADJ
15→36. YSUS_D	40→11. VKNOFS4_ADJ
16→35. YSUS_G	41→10. GND
17→34. GND	42→ 9. YRsv1
18→33. YPR-U	43→ 8. YRsv2
19→32. SUS_MUTE	44→ 7. YRsv3
20→31. GND	45→ 6. GND
21→30. YSUS_MSK_H	46→ 5. YDD_PD
22→29. YSUS_MSK_L	47→ 4. YSUS_PD
23→28. GND	48→ 3. SCAN_PD
24→27. YKNOFS1	49→ 2. YDRV_PD
25→26. YKNOFS2	50→ 1. PSW2

CN3001

1→50. GN	
2→49. L\	
3→48. RE	
4→47. RE	
5→46. T\	
6→45. GN	
7→44. GN	
8→43. GN	
9→42. GN	
10→41. GN	
11→40. GN	
12→39. GN	
13→38. GN	
14→37. GN	
15→36. GN	
16→35. GN	
17→34. GN	
18→33. GN	
19→32. GN	
20→31. GN	
21→30. GN	
22→29. GN	
23→28. GN	
24→27. GN	
25→26. GN	



- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

CN2001 Y1

26→25. YKNOFS3	
27→24. YKNOFS4	
28→23. GND	
29→22. YNOFS	
30→21. YRST_D	
31→20. YSOFT_G	
32→19. YSOFT_D	
33→18. GND	
34→17. VOFS_ADJ	
35→16. VYPRST_ADJ	
36→15. GND	
37→14. NC	
38→13. YKNOFS1_2_ADJ	
39→12. YKNOFS3_ADJ	
40→11. YKNOFS4_ADJ	
41→10. GND	
42→ 9. YRsv1	
43→ 8. YRsv2	
44→ 7. YRsv3	
45→ 6. GND	
46→ 5. YDD_PD	
47→ 4. YSUS_PD	
48→ 3. SCAN_PD	
49→ 2. YDRV_PD	
50→ 1. PSW2	

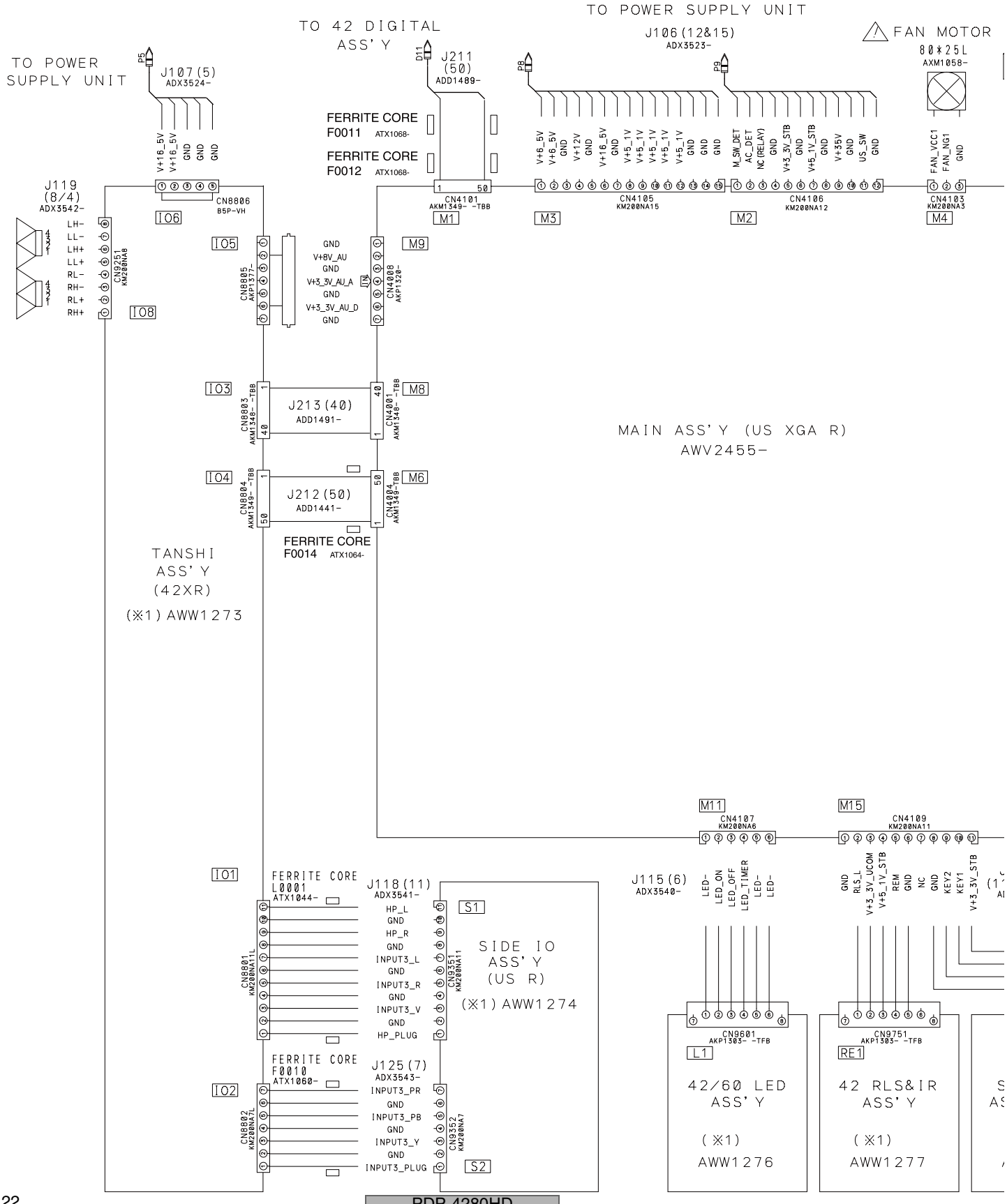
CN3001 D11 → CN4101 M1

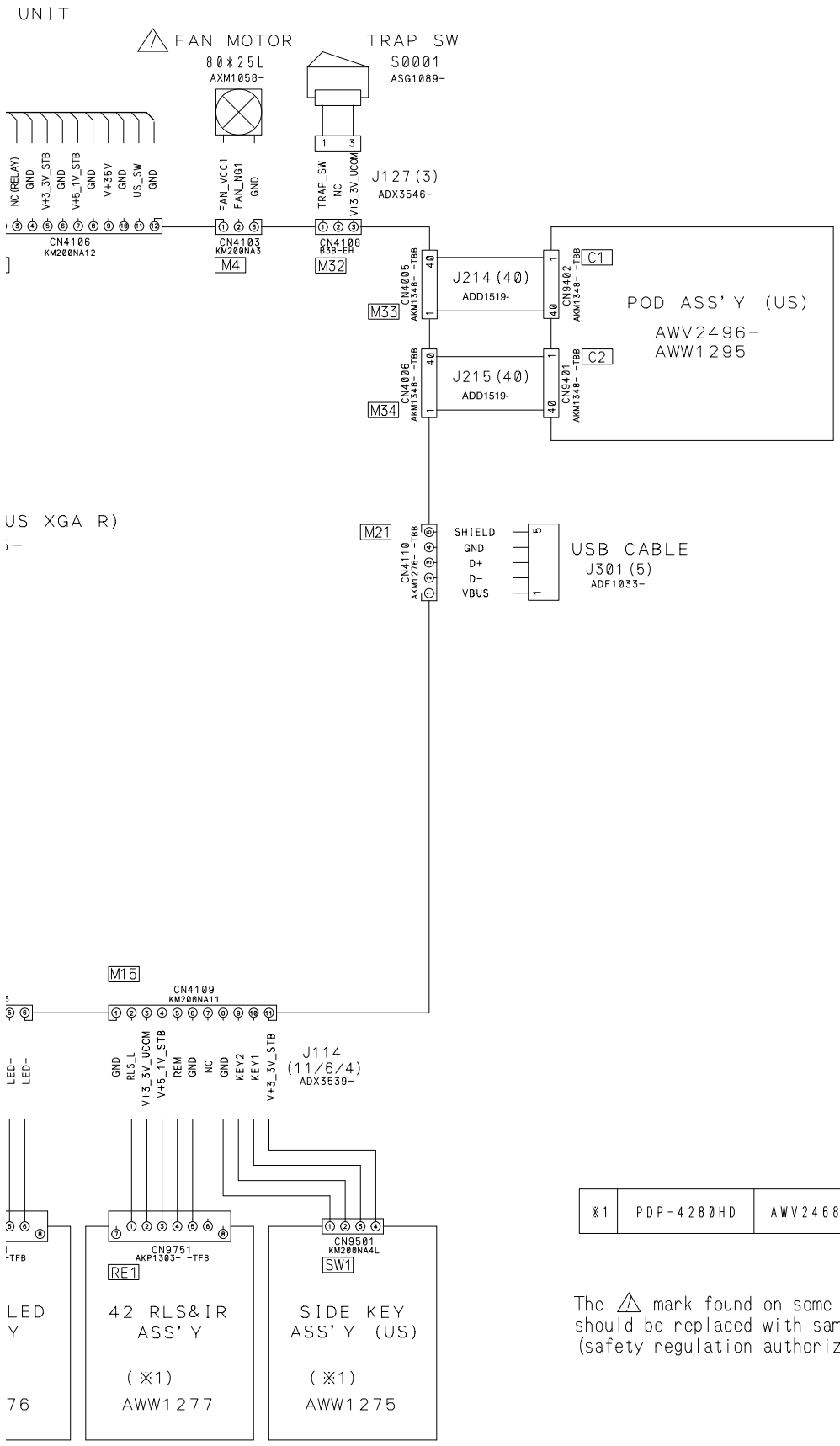
1→50. GND	26→25. GND
2→49. LVDS_ON	27→24. LVDS_E0+
3→48. REQ_MD	28→23. LVDS_E0-
4→47. RXD_MD	29→22. GND
5→46. TXD_MD	30→21. LVDS_D0+
6→45. GND	31→20. LVDS_D0-
7→44. GND	32→19. GND
8→43. GND	33→18. LVDS_CLK0+
9→42. GND	34→17. LVDS_CLK0-
10→41. GND	35→16. GND
11→40. GND	36→15. LVDS_C0+
12→39. GND	37→14. LVDS_C0-
13→38. GND	38→13. GND
14→37. GND	39→12. LVDS_B0+
15→36. GND	40→11. LVDS_B0-
16→35. GND	41→10. GND
17→34. GND	42→ 9. LVDS_A0+
18→33. GND	43→ 8. LVDS_A0-
19→32. GND	44→ 7. GND
20→31. GND	45→ 6. GND
21→30. GND	46→ 5. MSEL
22→29. GND	47→ 4. RELAY2
23→28. GND	48→ 3. V+3_3V_UCOM
24→27. GND	49→ 2. MODE
25→26. GND	50→ 1. GND

The ⚠ mark found on some component parts should be replaced with same parts (safety regulation authorized) of identical designation.

OVERALL DIAGRAM
PDP-4280HD

4.2 OVERALL WIRING DIAGRAM (2/2)





CONNECTOR PIN ASSIGN

CN4004 M6 → CN8804 IO4

1→50. GND	26→25. GND
2→49. TEMP2	27→24. INPUT2_V
3→48. NC	28→23. GND
4→47. V+3_3V_UCOM	29→22. INPUT1_V
5→46. NC	30→21. GND
6→45. GND	31→20. INPUT1_SY
7→44. GND	32→19. GND
8→43. GND	33→18. INPUT1_S2
9→42. GND	34→17. GND
10→41. GND	35→16. INPUT1_SC
11→40. GND	36→15. GND
12→39. GND	37→14. INPUT1_SPLUG
13→38. INPUT3_PLUG	38→13. GND
14→37. GND	39→12. INPUT2_PLUG
15→36. INPUT3_Y	40→11. GND
16→35. GND	41→10. INPUT2_Y
17→34. INPUT3_PB	42→ 9. GND
18→33. GND	43→ 8. INPUT2_PB
19→32. INPUT3_PR	44→ 7. GND
20→31. GND	45→ 6. INPUT2_PR
21→30. AIR_R	46→ 5. GND
22→29. GND	47→ 4. GND
23→28. AIR_L	48→ 3. GND
24→27. GND	49→ 2. GND
25→26. INPUT3_V	50→ 1. GND

CN4001 M8 → CN8803 IO3

1→40. V+5V_A	21→20. I2S_SDATA_HNM
2→39. NC	22→19. I2S_BCLK_HNM
3→38. V+3_3V_STB	23→18. I2S_LRCLK_HNM
4→37. NC	24→17. GND
5→36. GND	25→16. I2S_SDATA_HDMI
6→35. GND	26→15. I2S_BCLK_HDMI
7→34. GND	27→14. I2S_LRCLK_HDMI
8→33. GND	28→13. GND
9→32. IR_OUT	29→12. I2S_SDATA_DTV
10→31. GND	30→11. I2S_BCLK_DTV
11→30. GND	31→10. I2S_LRCLK_DTV
12→29. AC_AM_MUTE	32→ 9. GND
13→28. GND	33→ 8. SCL_AV
14→27. AC_HP_MUTE	34→ 7. SDA_AV
15→26. HP_PLUG	35→ 6. AC_A_MUTE
16→25. GND	36→ 5. RST_MSP
17→24. SPDIF_HNM	37→ 4. OTW
18→23. GND	38→ 3. A_NG_B
19→22. SPDIF_DTV	39→ 2. IO_DET
20→21. GND	40→ 1. GND

CN4005 M33 → CN9402 C1

1→40. GND	21→20. IORD
2→39. POD_VCC	22→19. MA11
3→38. POD_VCC	23→18. POD_VS1
4→37. POD_VCC	24→17. OE
5→36. MDIA3	25→16. CE2A
6→35. RDY/IRQA	26→15. MA10
7→34. MDIA2	27→14. MDOA7
8→33. WE	28→13. CE1A
9→32. MDIA1	29→12. MDOA6
10→31. GND	30→11. MD7
11→30. MOCLKA/MA14	31→10. MDOA5
12→29. GND	32→ 9. MD6
13→28. MDIA0	33→ 8. MDOA4
14→27. MA13	34→ 7. MD5
15→26. MISTRTA	35→ 6. MDOA3
16→25. GND	36→ 5. MD4
17→24. POD_CLK/MA8	37→ 4. CD1A
18→23. GND	38→ 3. MD3
19→22. IOWR	39→ 2. GND
20→21. POD_DATA/MA9	40→ 1. GND

CN4006 M34 → CN9401 C2

1→40. GND	21→20. WAITA
2→39. PTXDB	22→19. OOB_EN/MA4
3→38. GND	23→18. RSTA
4→37. PRXDB	24→17. TX_
5→36. GND	25→16. POD_VS2
6→35. CDA2	26→15. TX_EN
7→34. MDOA2	27→14. MDTA7
8→33. MD2	28→13. TX_Q
9→32. MDOA1	29→12. MDTA6
10→31. MD1	30→11. MA12
11→30. MDOA0	31→10. MDIA5
12→29. MD0	32→ 9. GND
13→28. MOSTRTA	33→ 8. MICLKA
14→27. MA0	34→ 7. GND
15→26. MOVALA	35→ 6. MDIA4
16→25. MA1	36→ 5. MIVALA
17→24. REG	37→ 4. POD_VPP
18→23. MA2	38→ 3. POD_VPP
19→22. GND	39→ 2. GND
20→21. MA3	40→ 1. GND

CN4002 M35 → CN7851 HN1

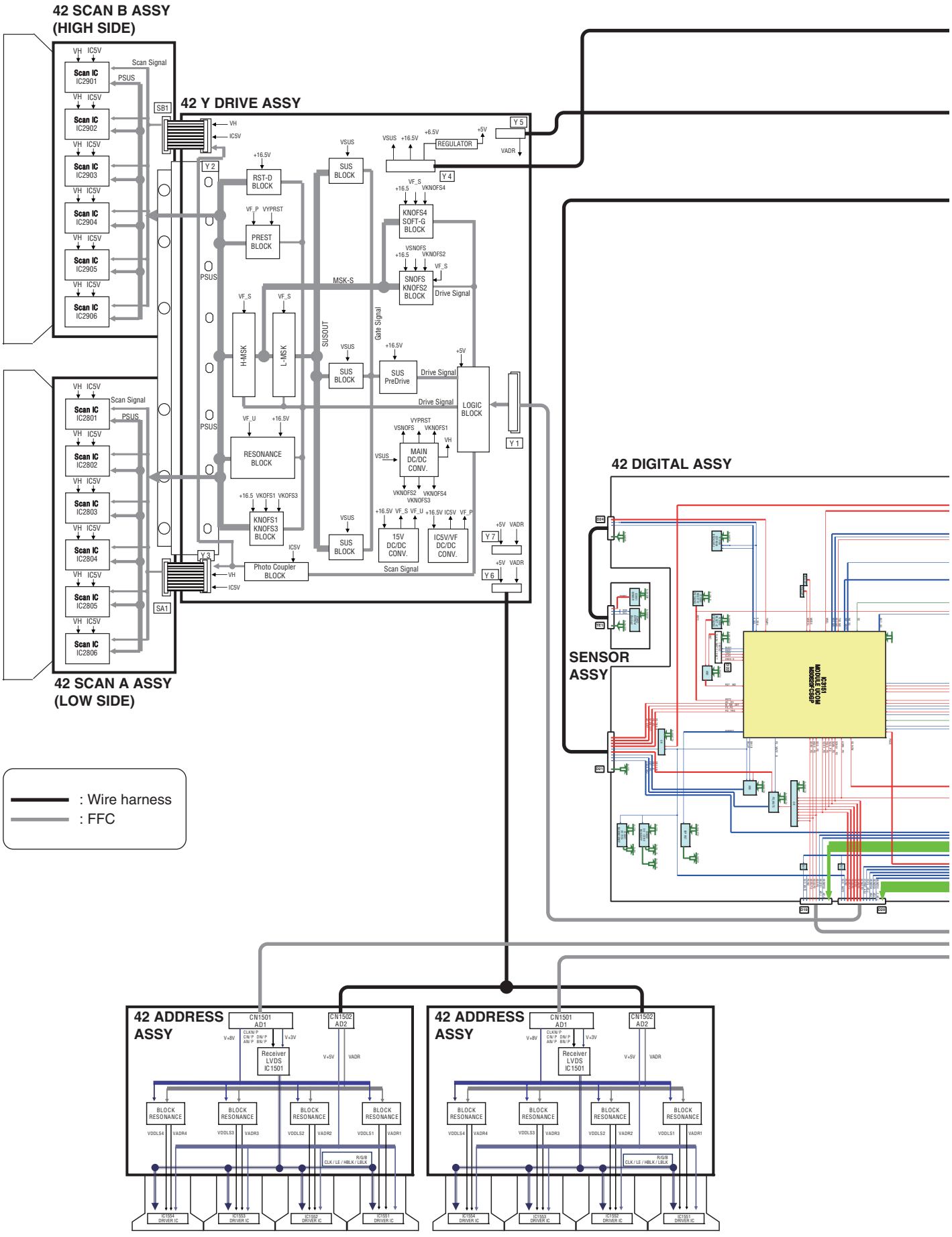
1. TXD_HNM	11. HNM_V
2. RXD_HNM	12. GND
3. RST_HNM	13. I2S_SDATA_HNM /NC
4. GND	
5. HNM_SPDIF	14. NC
6. GND	15. GND
7. I2S_BCLK_HNM /HNM_L	16. HNM_Y
	17. GND
8. GND	18. HNM_PB
9. I2S_LRCLK_HNM /HNM_R	19. GND
	20. HNM_PR
10. GND	

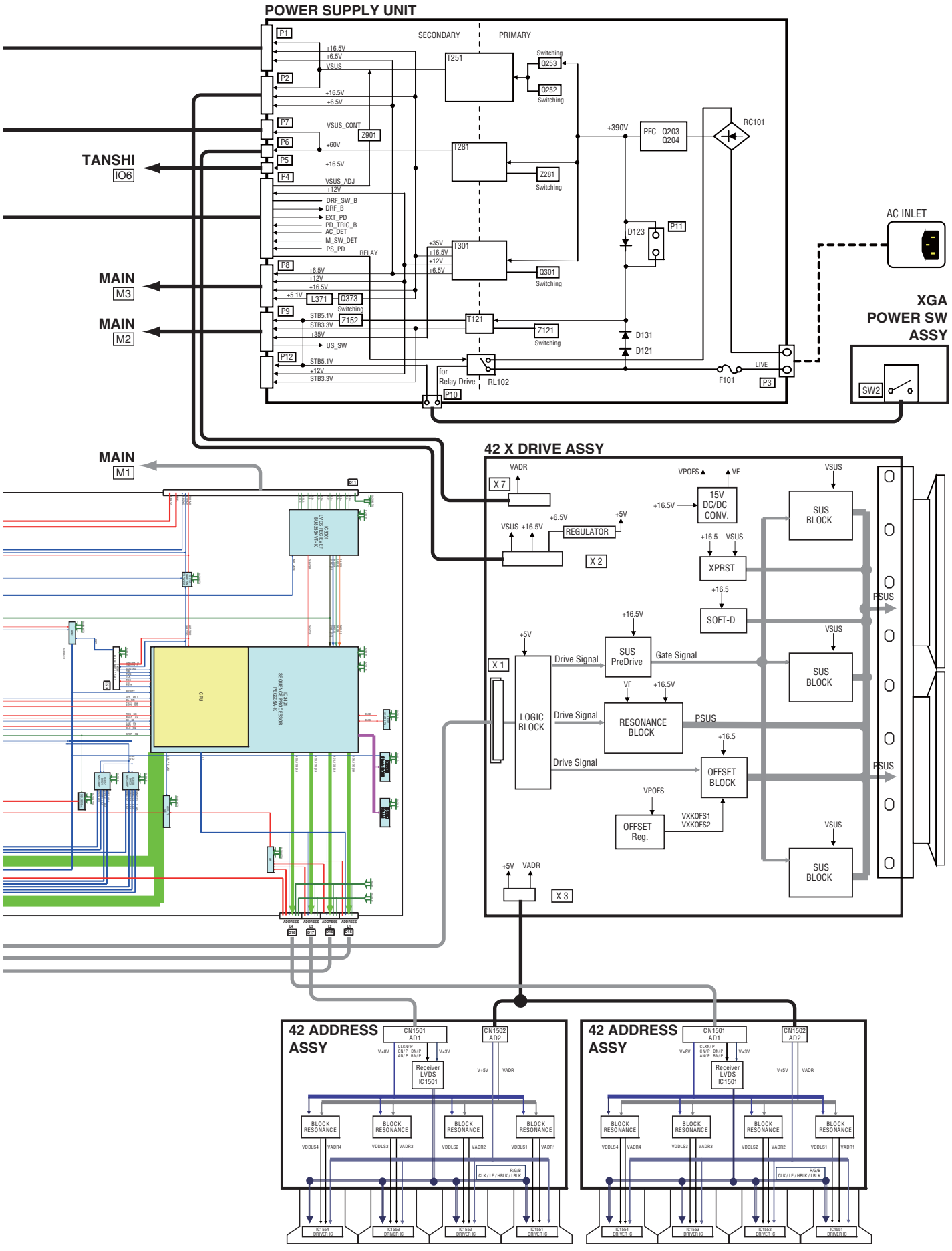
※1	PDP-4280HD	AWV2468-

The ⚠ mark found on some component parts should be replaced with same parts (safety regulation authorized) of identical designation.

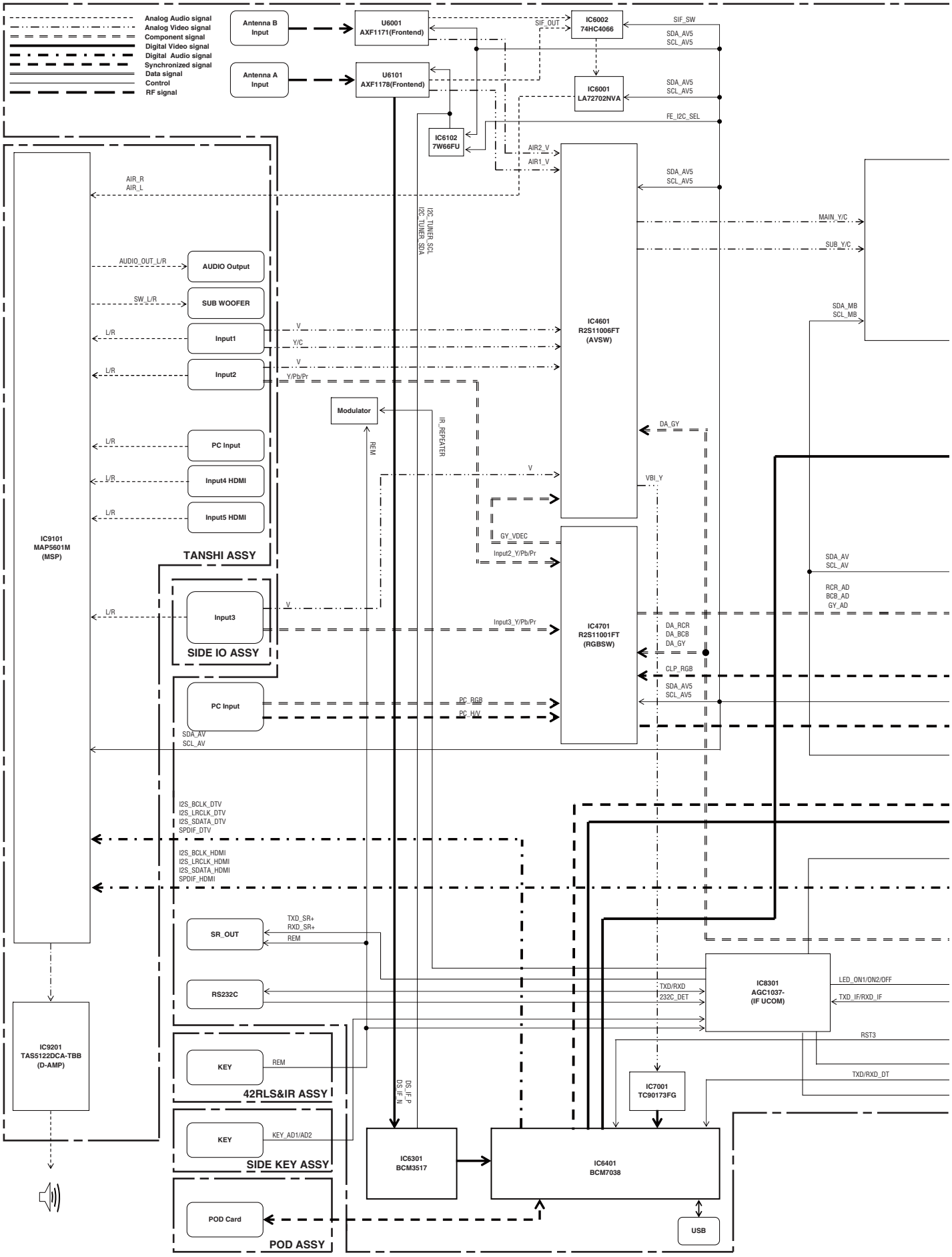
OVERALL DIAGRAM
PDP-4280HD

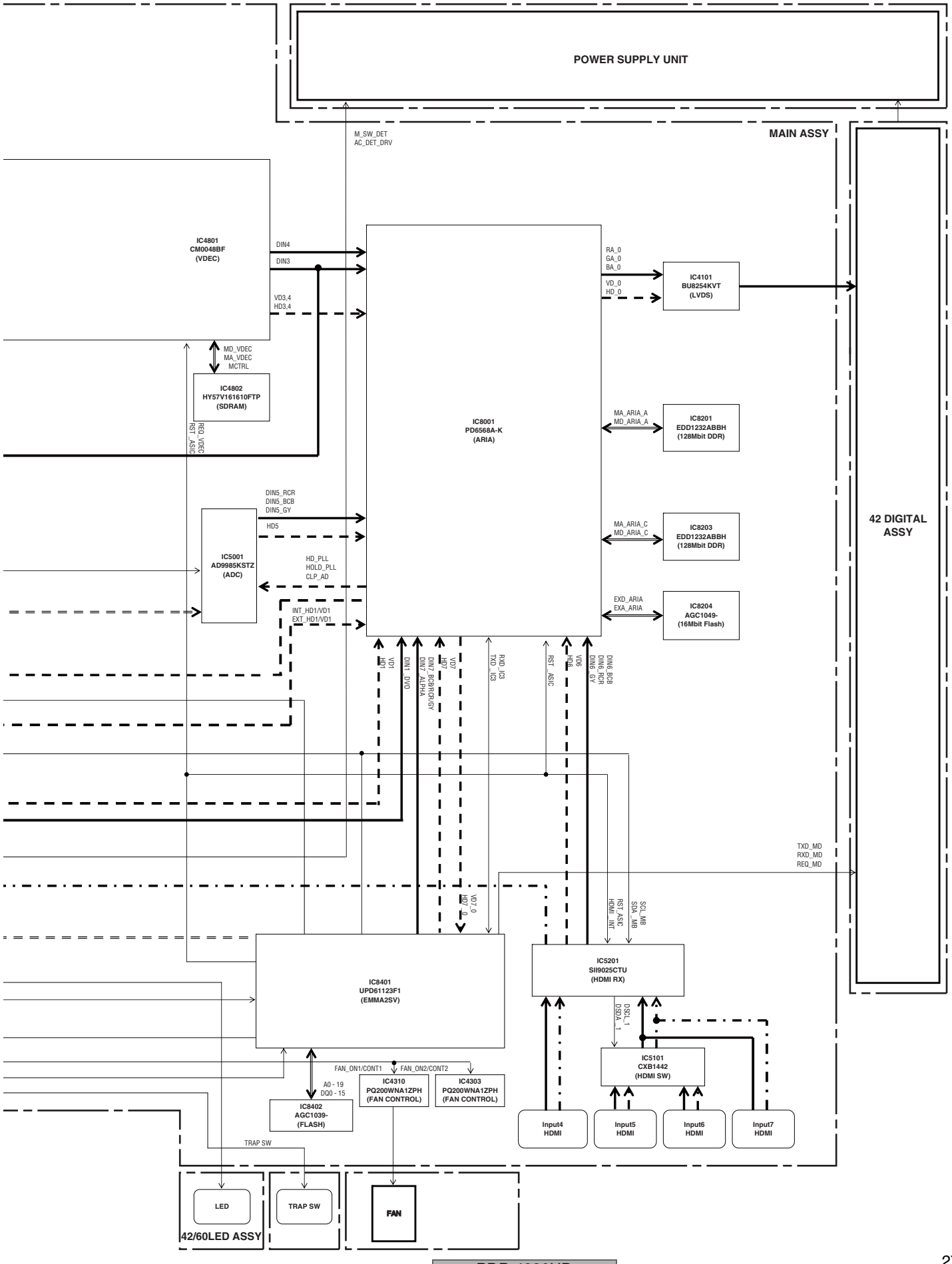
4.3 OVERALL BLOCK DIAGRAM (1/2)




POWER SUPPLY UNIT
SECONDARY
PRIMARY
TANSHI
IO6
MAIN
M3
MAIN
M2
MAIN
M1
AC INLET
XGA
POWER SW
ASSY
SW2
42 X DRIVE ASSY
VADR
X 7
REGULATOR
X 2
15V
DC/DC
CONV.
XPRST
SOFT-D
SUS
PreDrive
Drive Signal
Gate Signal
LOGIC
BLOCK
RESONANCE
BLOCK
OFFSET
BLOCK
OFFSET
Reg.
SUS
BLOCK
PSUS
X 1
X 3
42 ADDRESS
ASSY
CN1501
AD1
CN1502
AD2
Receiver
LVDS
IC1501
BLOCK
RESONANCE
R/G/B
CLK / LE / HBLK / LBLK

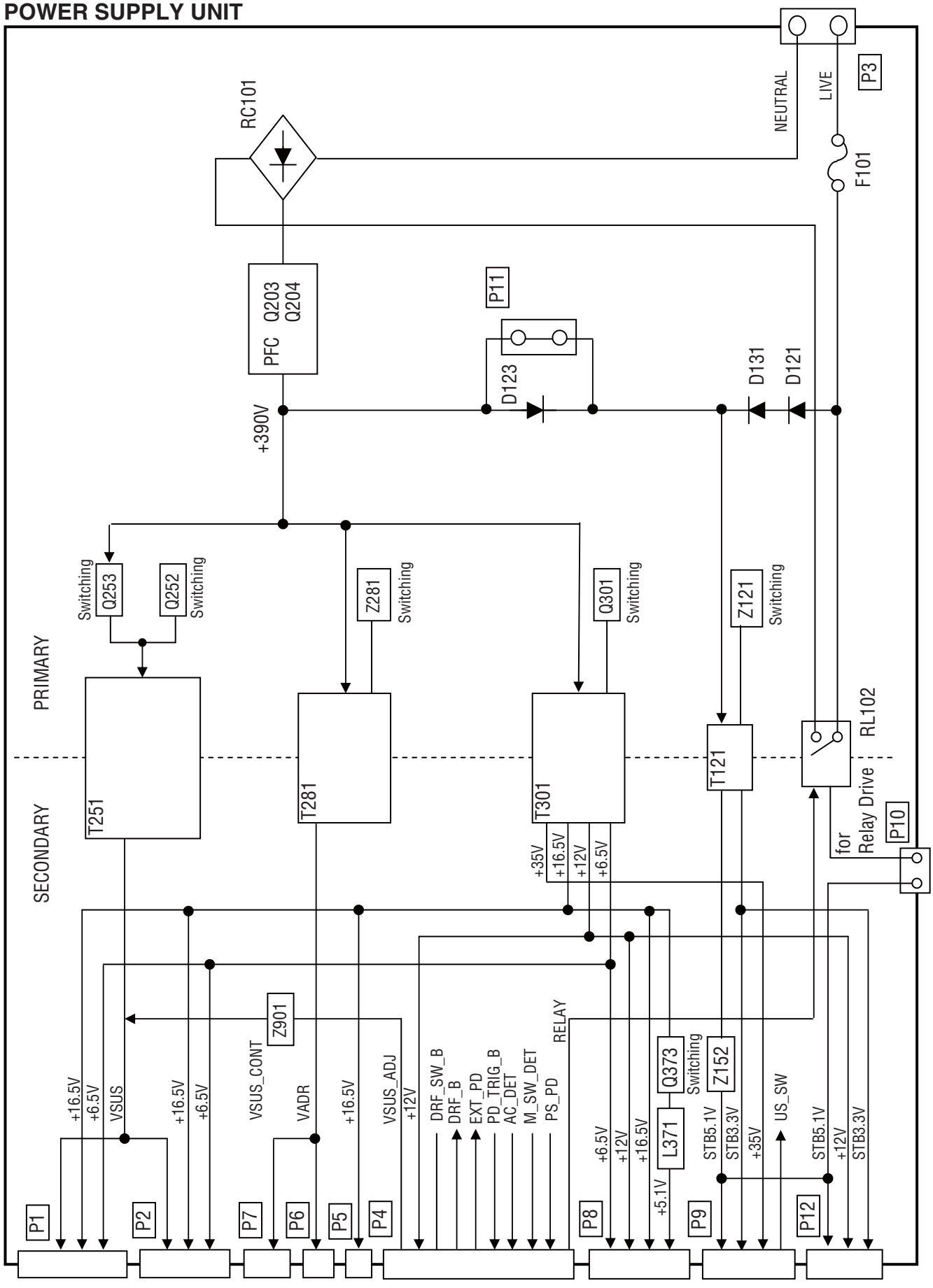
4.4 OVERALL BLOCK DIAGRAM (2/2)




POWER SUPPLY UNIT
MAIN ASSY
M_SW_DET
AC_DET_DRV
IC4801
CM0048BF
(VDEC)
DIN4
DIN3
VD3,4
HD3,4
MD_VDEC
MA_VDEC
MCTRL
IC4802
HY57V161610FTP
(SDRAM)
REQ_VDEC
RST_ASIC
IC8001
PD6568A-K
(ARIA)
RA_0
GA_0
BA_0
VD_0
HD_0
IC4101
BU8254KVT
(LVDS)
MA_ARIA_A
MD_ARIA_A
IC8201
EDD1232ABBH
(128Mbit DDR)
MA_ARIA_C
MD_ARIA_C
IC8203
EDD1232ABBH
(128Mbit DDR)
EXD_ARIA
EXA_ARIA
IC8204
AGC1049-
(16Mbit Flash)
42 DIGITAL
ASSY
DIN5_RCR
DIN5_BCB
DIN5_GY
HD5
IC5001
AD9985KSTZ
(ADC)
HD_PLL
HOLD_PLL
CLP_AD
INT_HD1/VD1
EXT_HD1/VD1
VD1
HD1
DIN1_DVO
DIN7_BCB/RCR/GY
DIN7_ALPHA
VD7
HD7
RXD_IC3
TXD_IC3
RST_ASIC
VD6
HD6
DIN6_BCB
DIN6_RCR
DIN6_GY
TXD_MD
RXD_MD
REQ_MD
VD7_0
HD7_0
RST_ASIC
HDMI_INT
SCL_MB
SDA_MB
IC8401
UPD61123F1
(EMMA2SV)
IC5201
SII9025CTU
(HDMI RX)
DSCL_1
DSDA_1
IC5101
CXB1442
(HDMI SW)
FAN_ON1/CONT1
FAN_ON2/CONT2
A0 - 19
DQ0 - 15
IC8402
AGC1039-
(FLASH)
IC4310
PQ200WNA1ZPH
(FAN CONTROL)
IC4303
PQ200WNA1ZPH
(FAN CONTROL)
Input4
HDMI
Input5
HDMI
Input6
HDMI
Input7
HDMI
TRAP SW
LED
TRAP SW
FAN
42/60LED ASSY

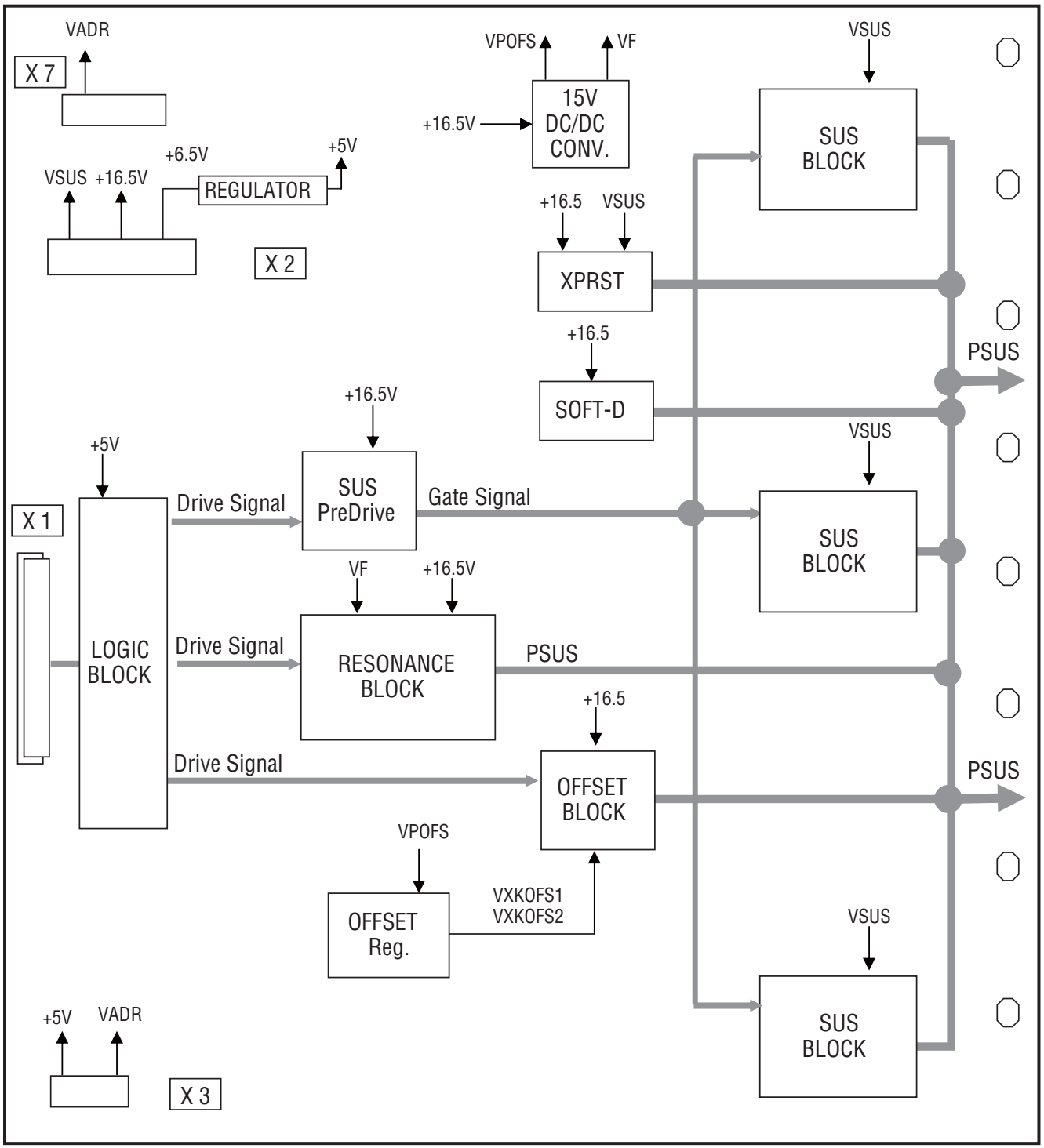
4.5 POWER SUPPLY UNIT

POWER SUPPLY UNIT

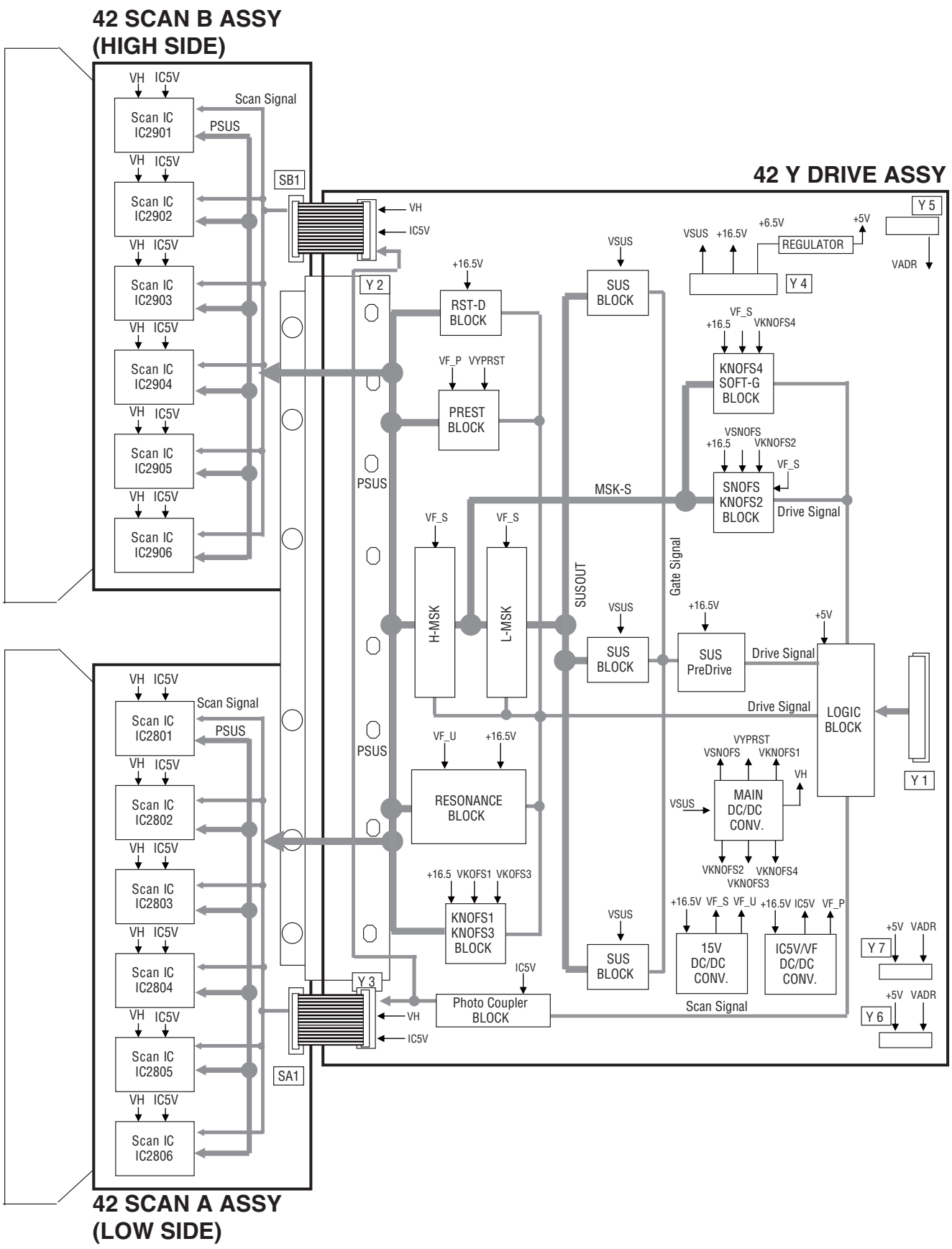


4.6 42 X DRIVE ASSY

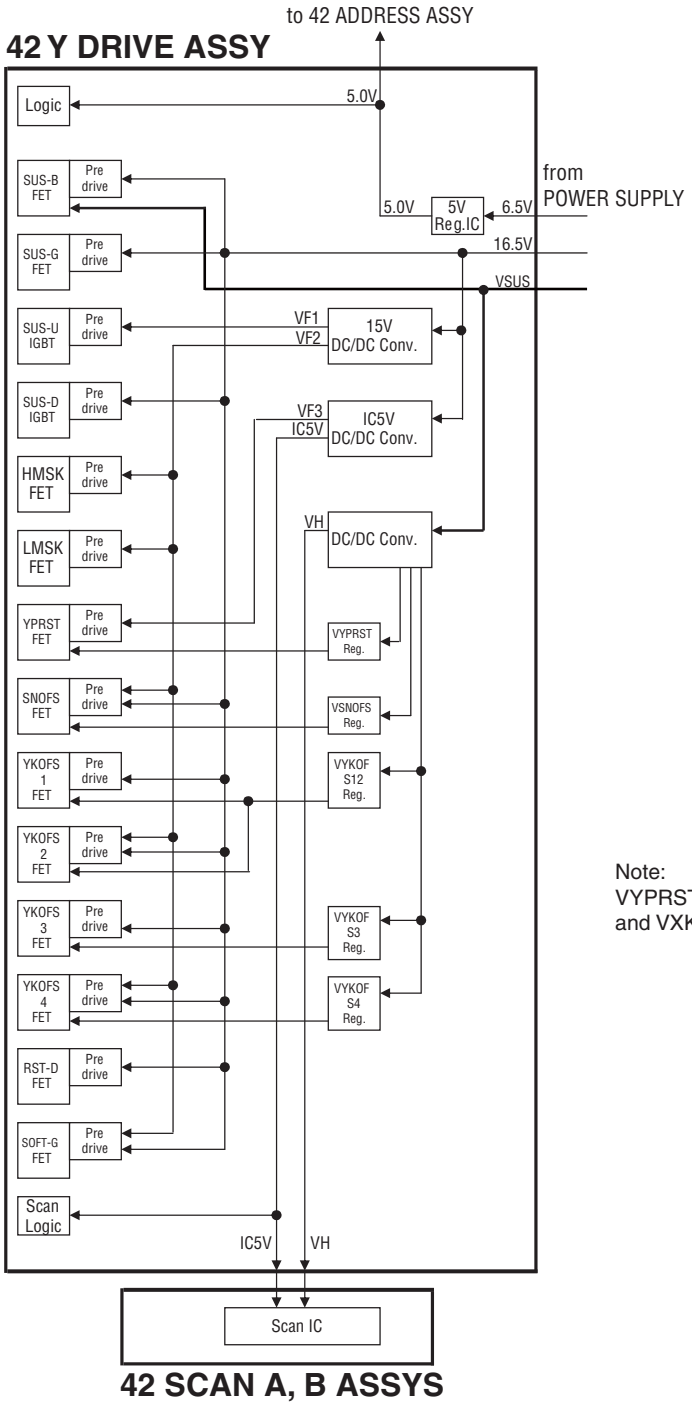
42 X DRIVE ASSY

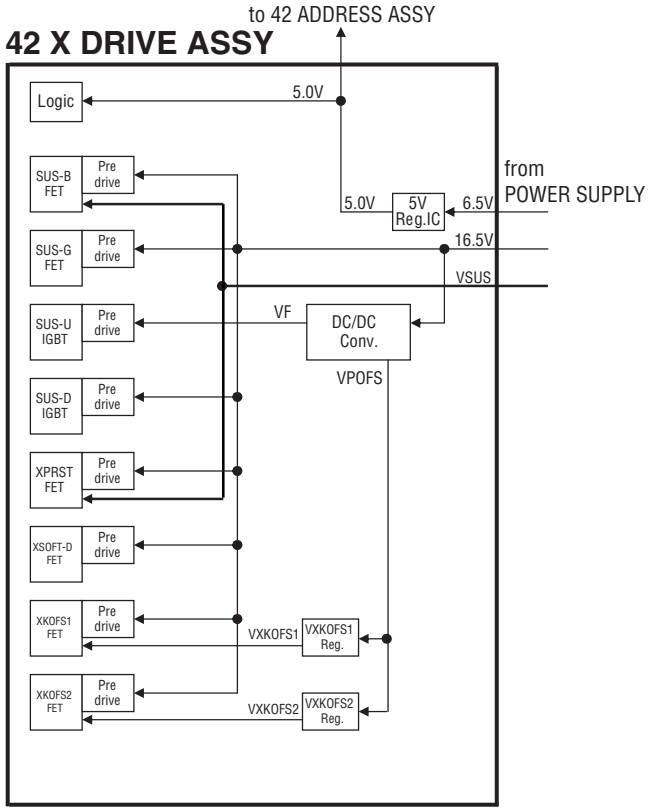


4.7 42 Y DRIVE, 42 SCAN A and B ASSYS



4.8 POWER SUPPLY BLOCK of 42 X, Y DRIVE and 42 SCAN A, B ASSYS

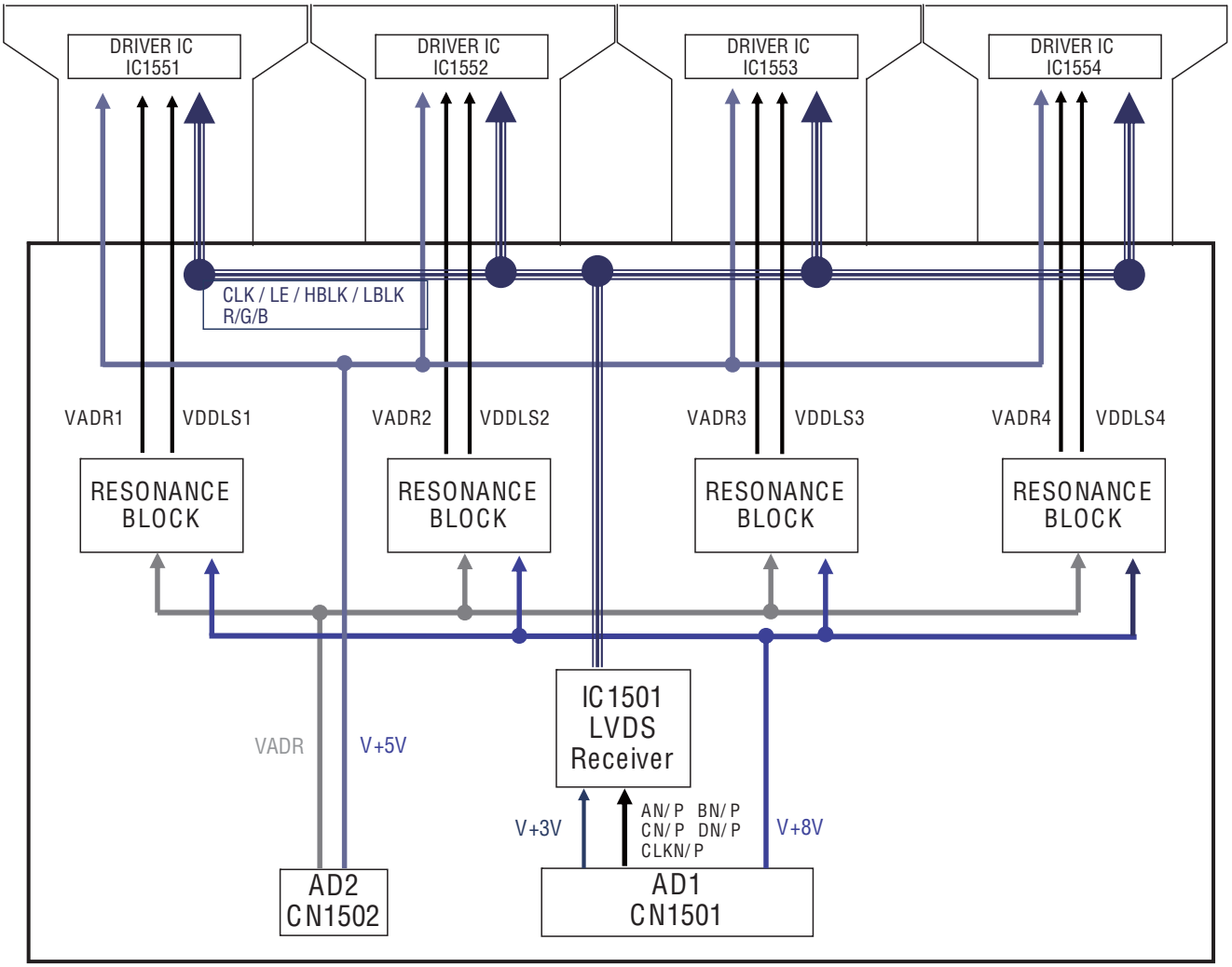




Note:
VYPRST, VSNOFS, VYKOFS12, VYKOFS3, VYKOFS4 and VXKOFS2 voltages are electrical volume controls.

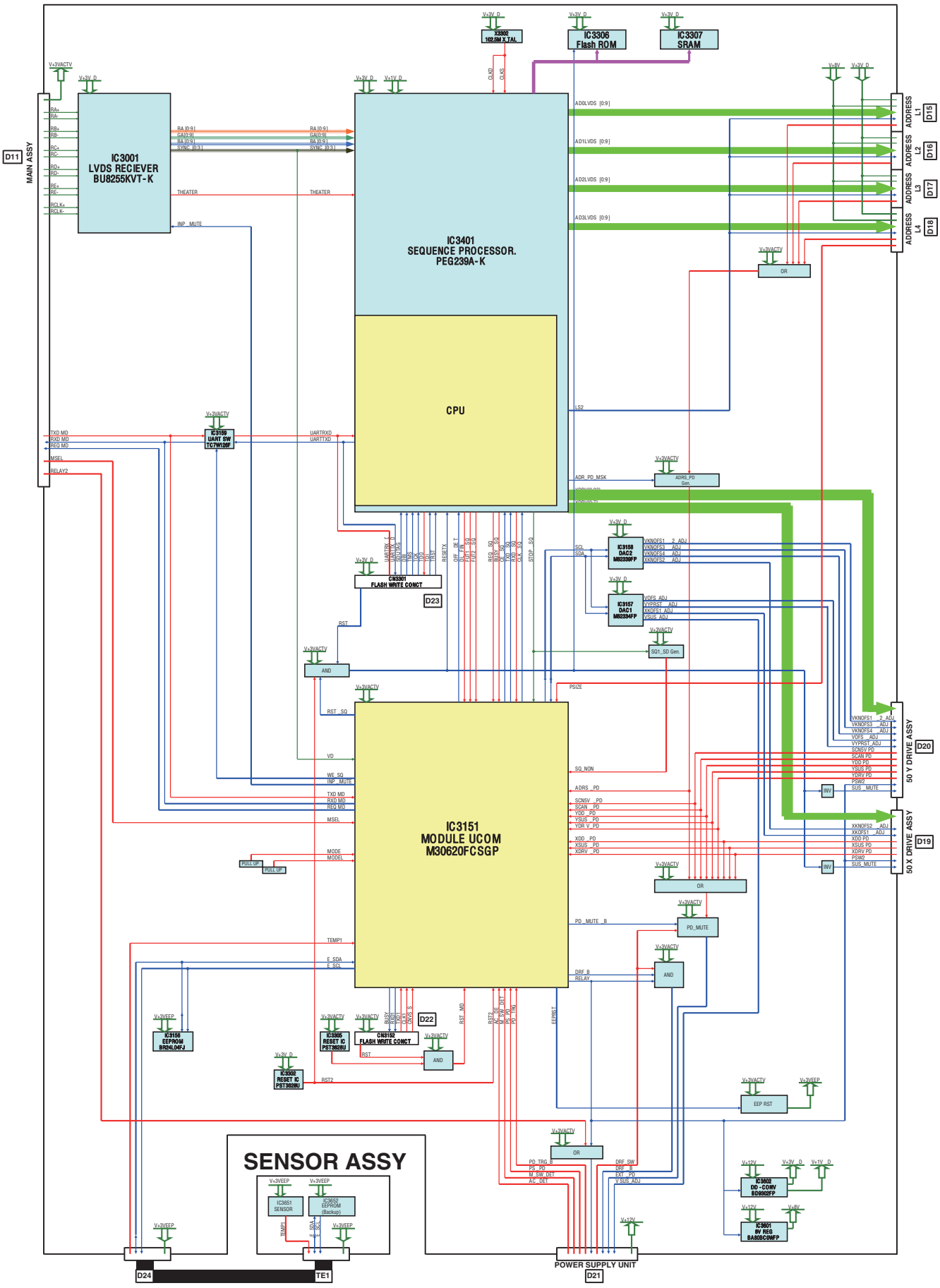
4.9 42 ADDRESS ASSY

42 ADDRESS ASSY

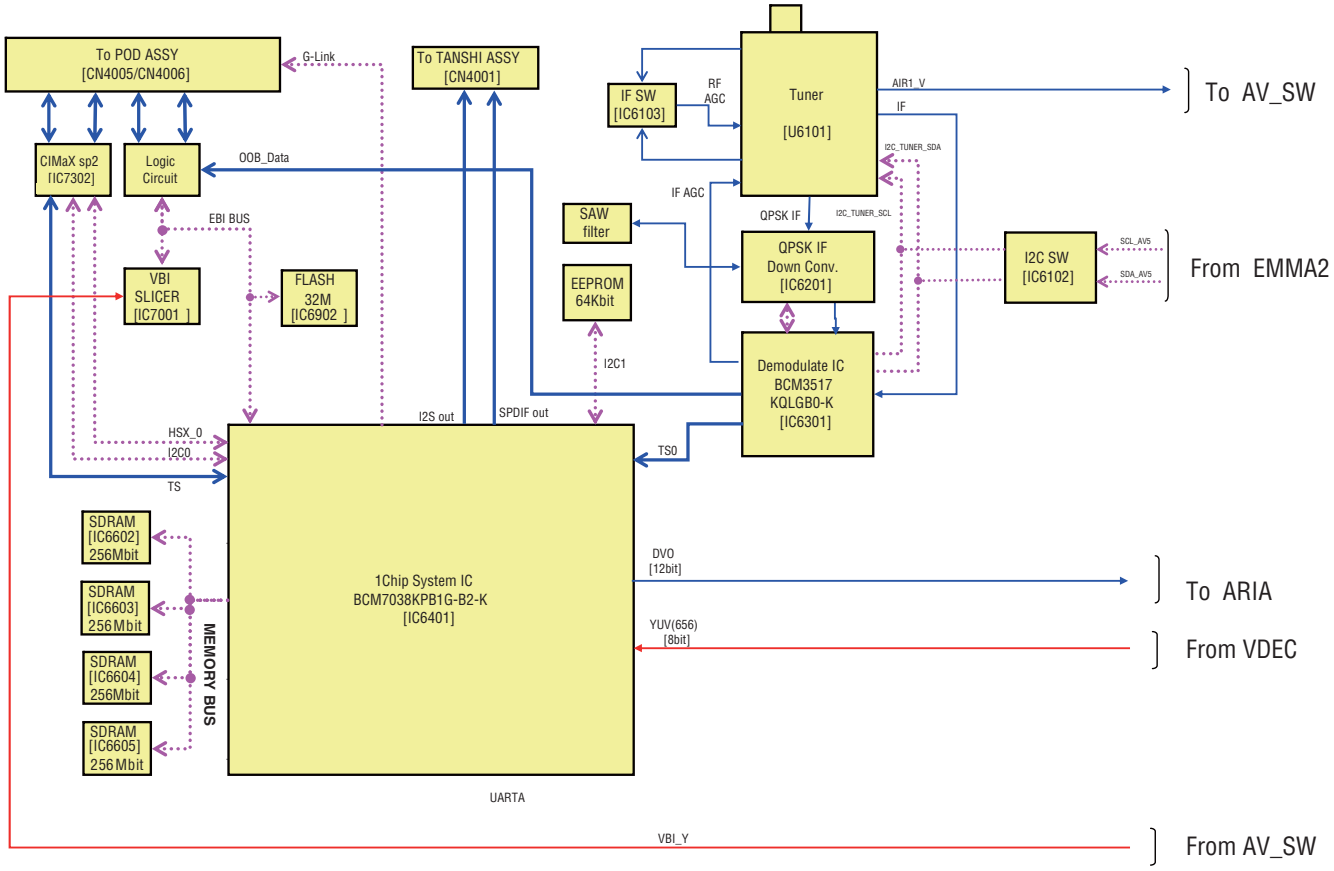


4.10 42 DIGITAL and SENSOR ASSYS

42 DIGITAL ASSY



4.11 MAIN ASSY (DTV BLOCK DIAGRAM)



A

B

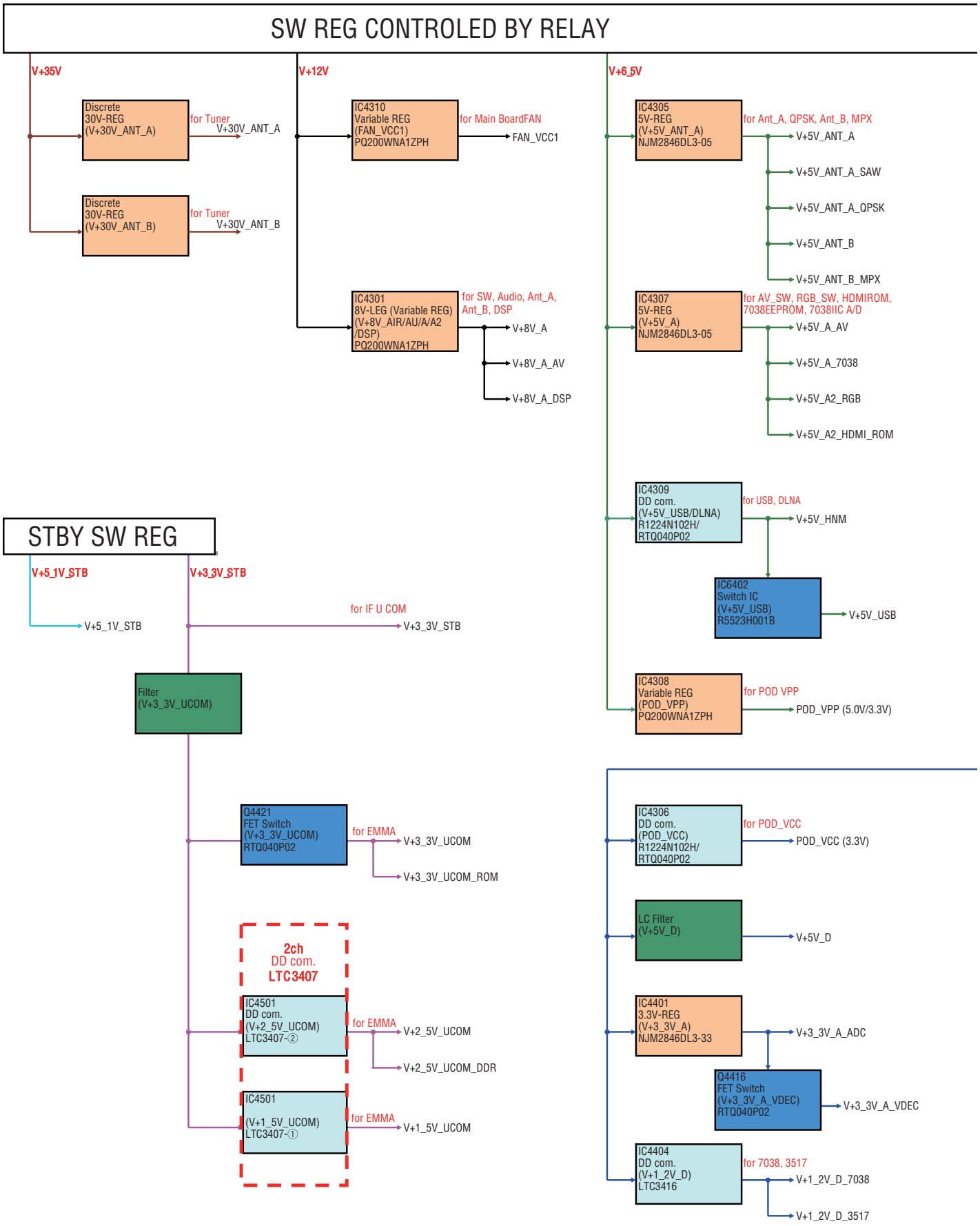
C

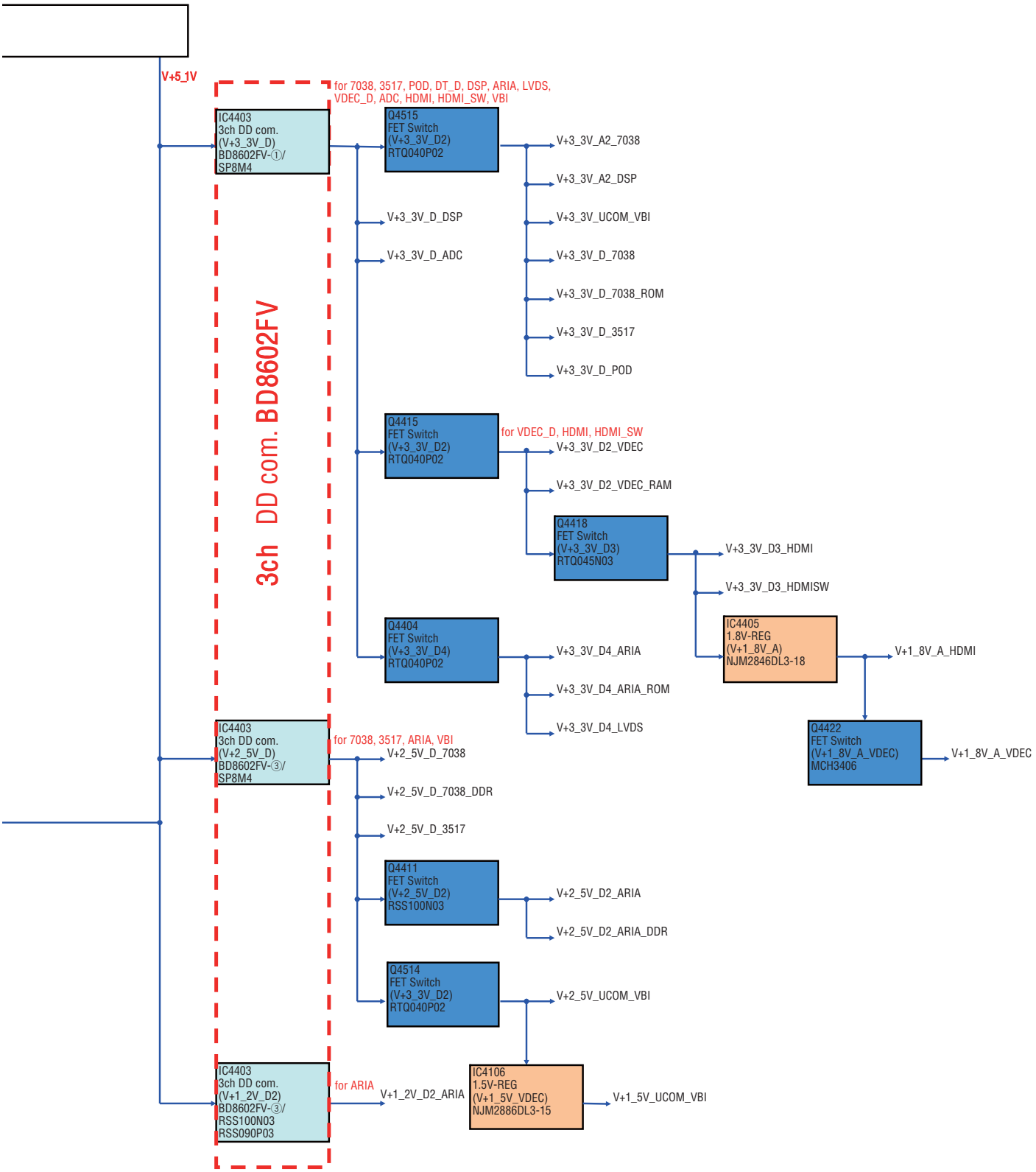
D

E

F

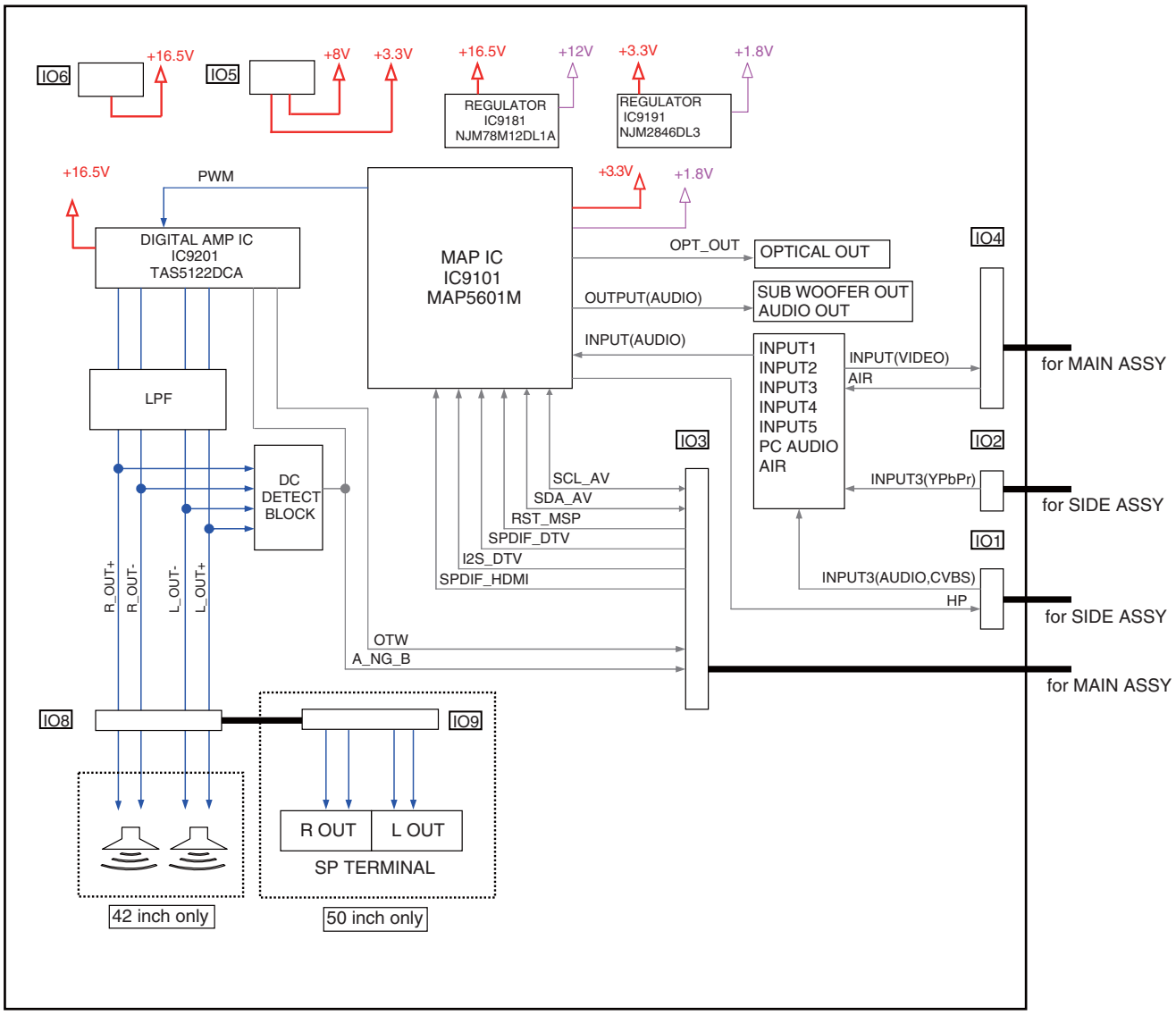
4.12 POWER SUPPLY BLOCK of MAIN ASSY



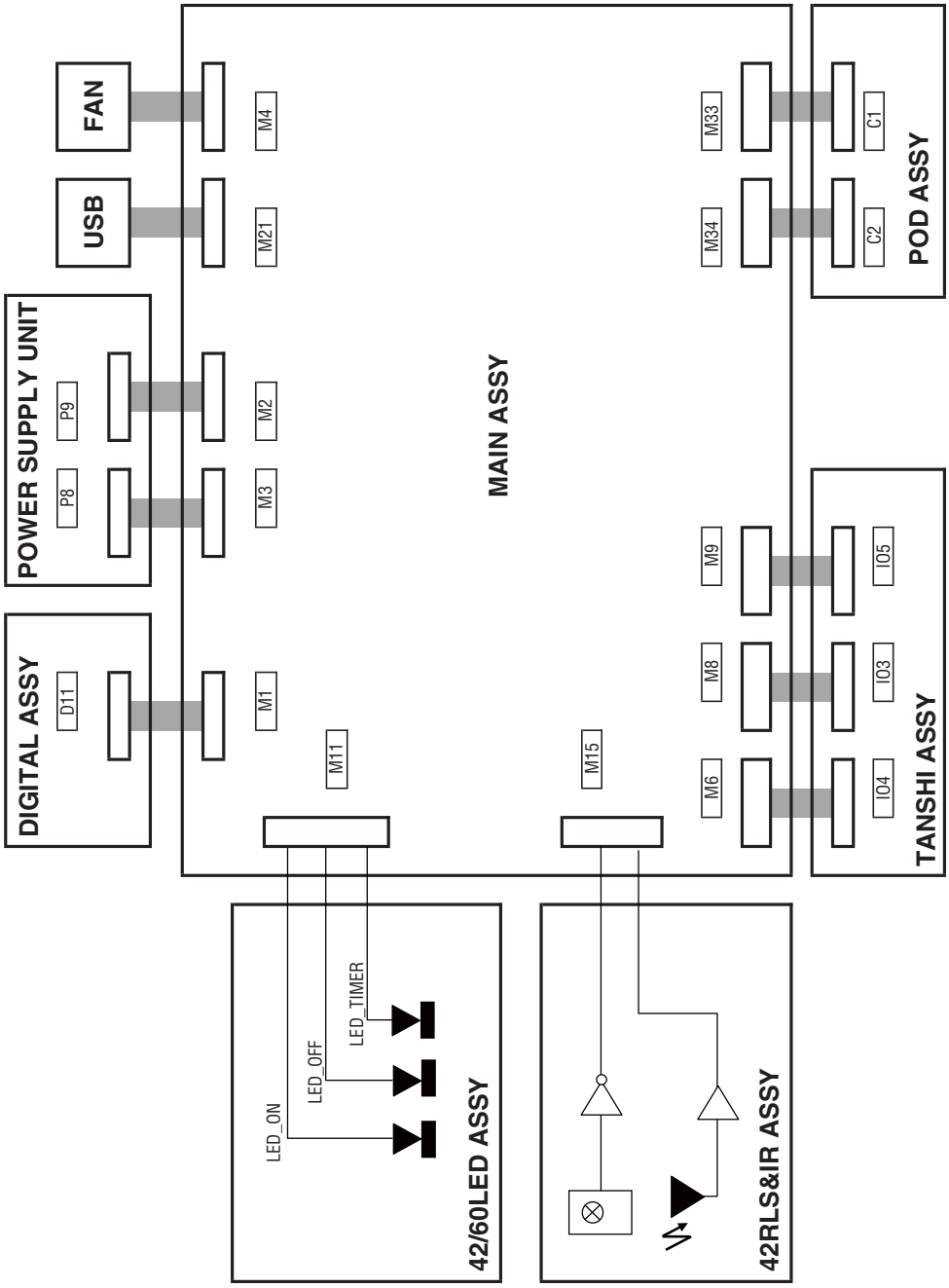

V+5_1V
3ch DD com. BD8602FV
IC4403
3ch DD com.
(V+3_3V_D)
BD8602FV-①/
SP8M4
for 7038, 3517, POD, DT_D, DSP, ARIA, LVDS,
VDEC_D, ADC, HDMI, HDMI_SW, VBI
Q4515
FET Switch
(V+3_3V_D2)
RTQ040P02
V+3_3V_A2_7038
V+3_3V_A2_DSP
V+3_3V_D_DSP
V+3_3V_UCOM_VBI
V+3_3V_D_ADC
V+3_3V_D_7038
V+3_3V_D_7038_ROM
V+3_3V_D_3517
V+3_3V_D_POD
Q4415
FET Switch
(V+3_3V_D2)
RTQ040P02
for VDEC_D, HDMI, HDMI_SW
V+3_3V_D2_VDEC
V+3_3V_D2_VDEC_RAM
Q4418
FET Switch
(V+3_3V_D3)
RTQ045N03
V+3_3V_D3_HDMI
V+3_3V_D3_HDMISW
Q4404
FET Switch
(V+3_3V_D4)
RTQ040P02
IC4405
1.8V-REG
(V+1_8V_A)
NJM2846DL3-18
V+1_8V_A_HDMI
V+3_3V_D4_ARIA
V+3_3V_D4_ARIA_ROM
V+3_3V_D4_LVDS
Q4422
FET Switch
(V+1_8V_A_VDEC)
MCH3406
V+1_8V_A_VDEC
IC4403
3ch DD com.
(V+2_5V_D)
BD8602FV-③/
SP8M4
for 7038, 3517, ARIA, VBI
V+2_5V_D_7038
V+2_5V_D_7038_DDR
V+2_5V_D_3517
Q4411
FET Switch
(V+2_5V_D2)
RSS100N03
V+2_5V_D2_ARIA
V+2_5V_D2_ARIA_DDR
Q4514
FET Switch
(V+3_3V_D2)
RTQ040P02
V+2_5V_UCOM_VBI
IC4403
3ch DD com.
(V+1_2V_D2)
BD8602FV-③/
RSS100N03
RSS090P03
for ARIA
V+1_2V_D2_ARIA
IC4106
1.5V-REG
(V+1_5V_VDEC)
NJM2886DL3-15
V+1_5V_UCOM_VBI

4.13 TANSHI ASSY

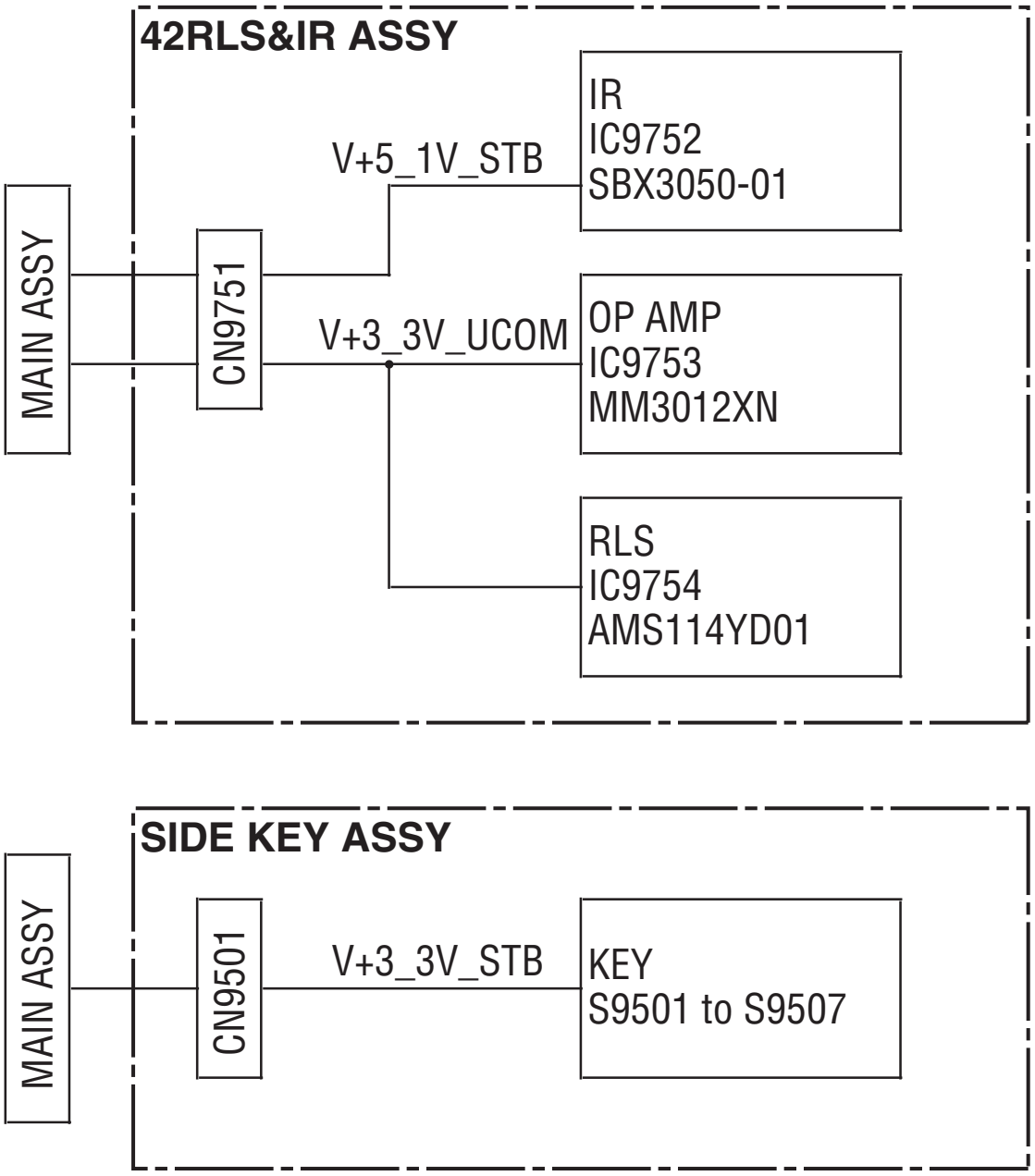
TANSHI ASSY



4.14 42/60LED and 42RLS&IR ASSYS



4.15 POWER SUPPLY BLOCK of 42RLS&IR and SIDE KEY ASSYS



5. DIAGNOSIS

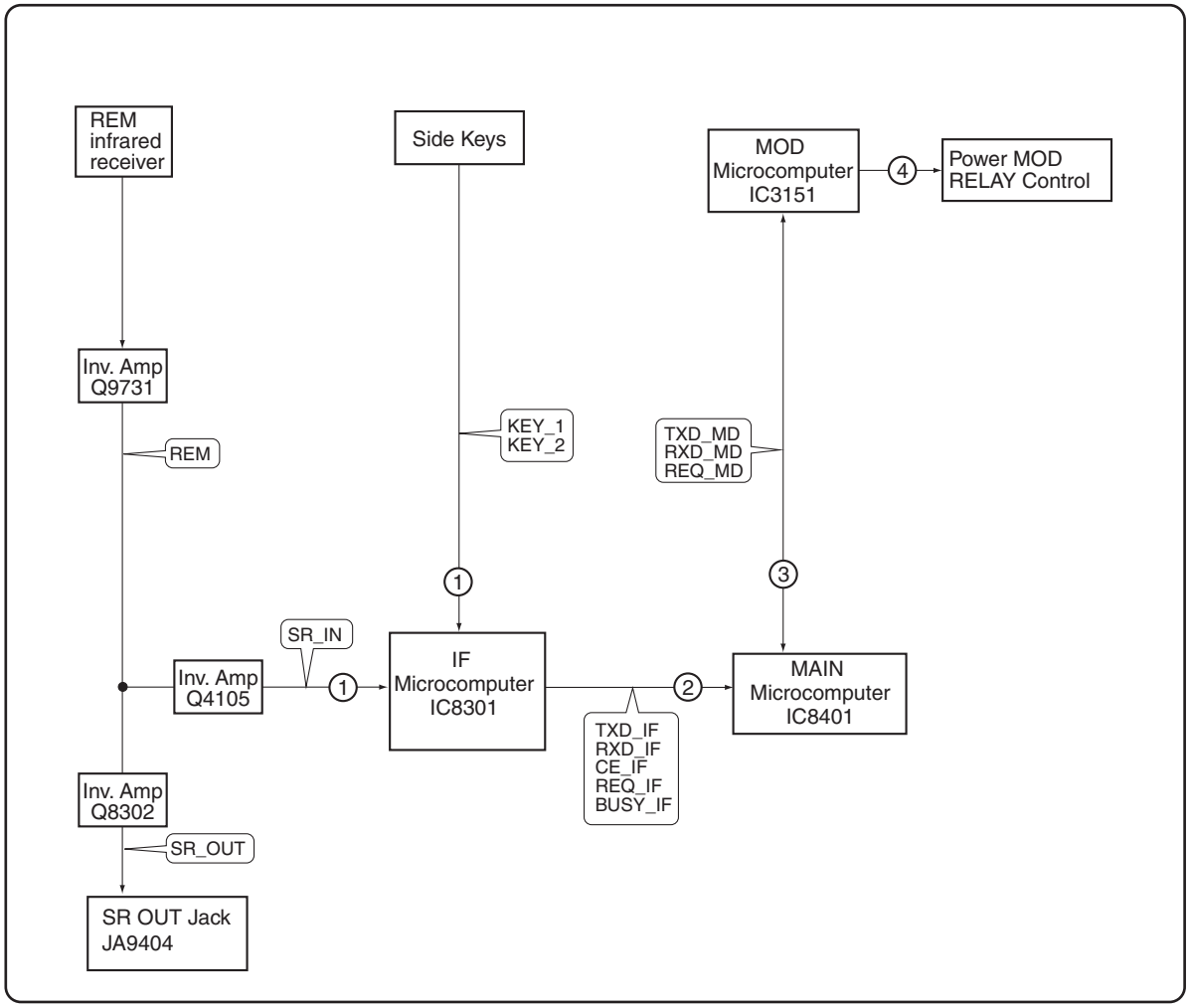
5.1 POWER SUPPLY OPERATION

5.1.1 LED DISPLAY INFORMATION

LED Pattern

State	LED Pattern	Remarks
AC OFF or Main power switch OFF		
Standby power management		
Power ON (Screen ON)		
Power-down	Once, Twice, n times, 2.5s, Once; 500ms	
Shutdown	500ms; Once, Twice, n times, 2.5s, Once	
No digital adjustment data copied for backup	200ms	The LEDs flash only while the panel is turned on.
In the process of rewriting the program of the microcomputer	100ms; 100ms	
During factory operation		
Trap switch		
During DTV Module software downloading	100ms; 100ms	
Downloading of DTV Module software is finished normally.	500ms, 500ms, 500ms, 500ms, 500ms	
Downloading of DTV Module software is abnormally finished.	500ms, 500ms, 500ms, 500ms, 500ms	
Sleep timer		

5.1.2 POWER ON SEQUENCE



① : The remote control (or KEY) signal is input to the IF microcomputer.
② : The IF microcomputer sends the operation data of the remote control unit (or KEY) to the main microcomputer.
③ : The main microcomputer issues a startup command (PON) to the MOD microcomputer.
④ : The relay is controlled with logical OR interpretation of control signals by the main microcomputer and module (MOD) microcomputer.

5.1.3 DETAILS OF POWER ON SEQUENCE

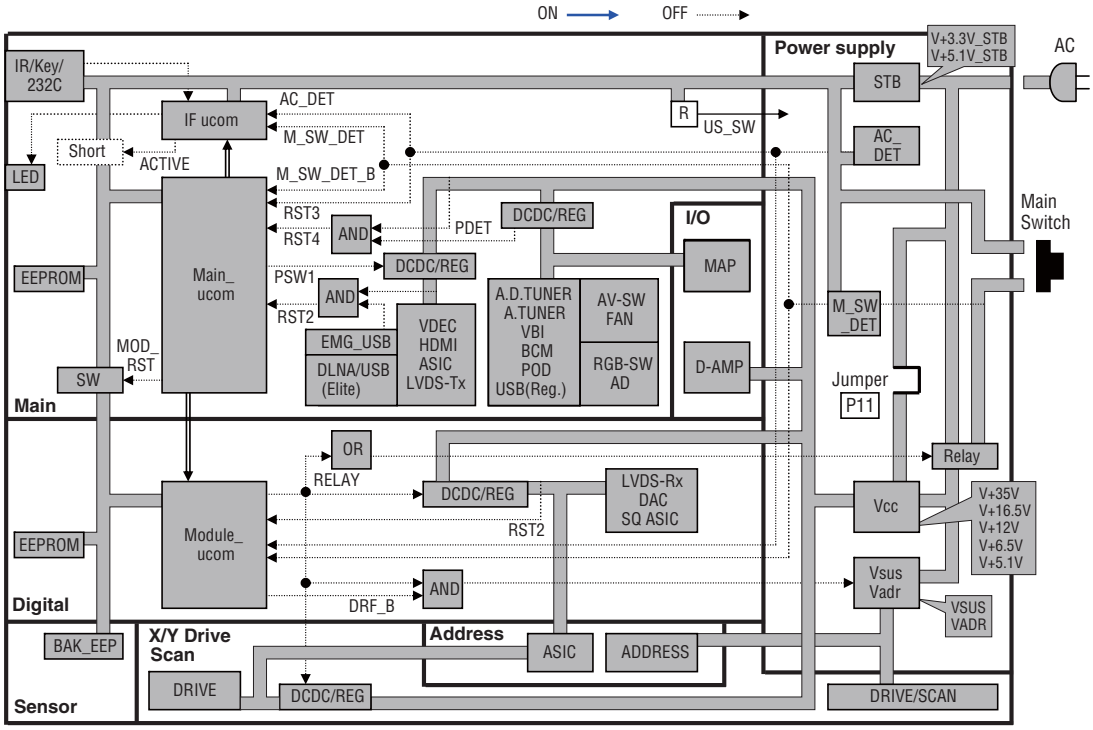
Power supply status - AC off

Microcomputer output port state

IF: ACTIVE	OFF
Main: PSW1	OFF
Module: RELAY	OFF
Module: DRF_B	OFF

Microcomputer input port state

Main: RST4	OFF
Main: RST2	OFF
Module: RST2	OFF



The state of AC cord is pulled out.

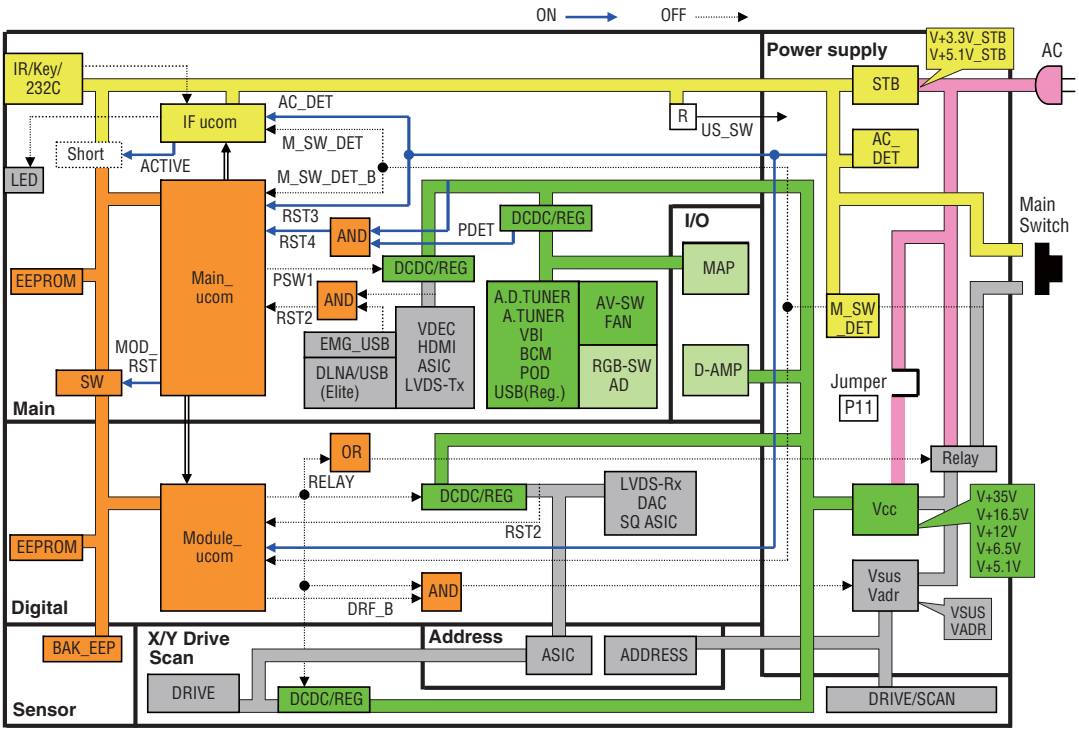
Power supply status - Main switch off

Microcomputer output port state

IF: ACTIVE	ON
Main: PSW1	OFF
Module: RELAY	OFF
Module: DRF_B	OFF

Microcomputer input port state

Main: RST4	ON
Main: RST2	OFF
Module: RST2	OFF



The user operation with the remote control unit is invalid. (All LED: OFF)
Standby power device and some Vcc power devices operate.
RGB-SW/AD/D-AMP/MAP are electrified, but uses the power-saving mode function of the IC.

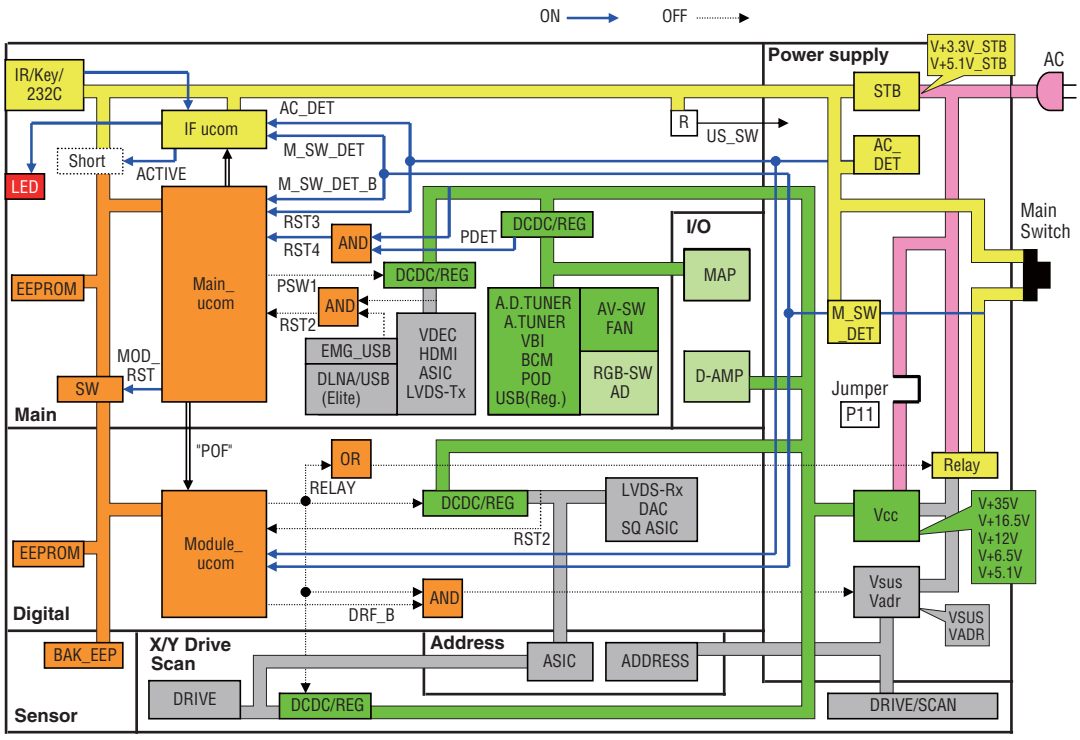
Power supply status - Standby

Microcomputer output port state

IF: ACTIVE	ON
Main: PSW1	OFF
Module: RELAY	OFF
Module: DRF_B	OFF

Microcomputer input port state

Main: RST4	ON
Main: RST2	OFF
Module: RST2	OFF



Remote control unit waiting state. (Red LED: ON)
Standby power device and some Vcc power devices operate.
RGB-SW/AD/D-AMP/MAP are electrified, but uses the power-saving mode function of the IC.

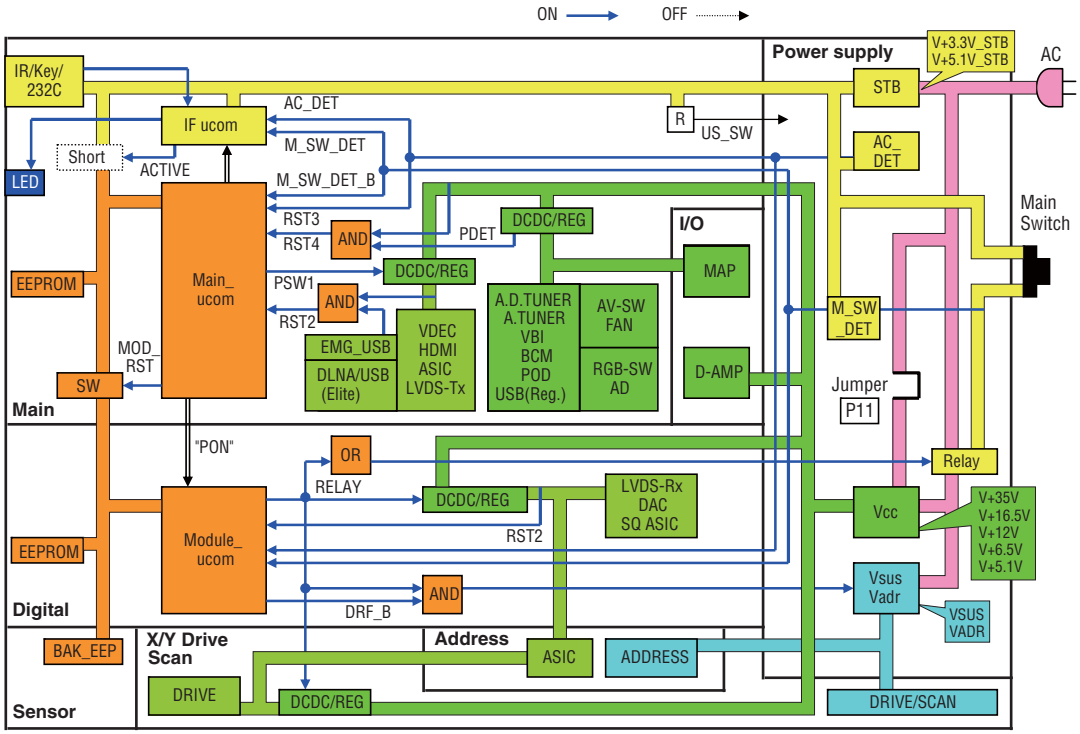
Power supply status - ON

Microcomputer output port state

IF: ACTIVE	ON
Main: PSW1	ON
Module: RELAY	ON
Module: DRF_B	ON

Microcomputer input port state

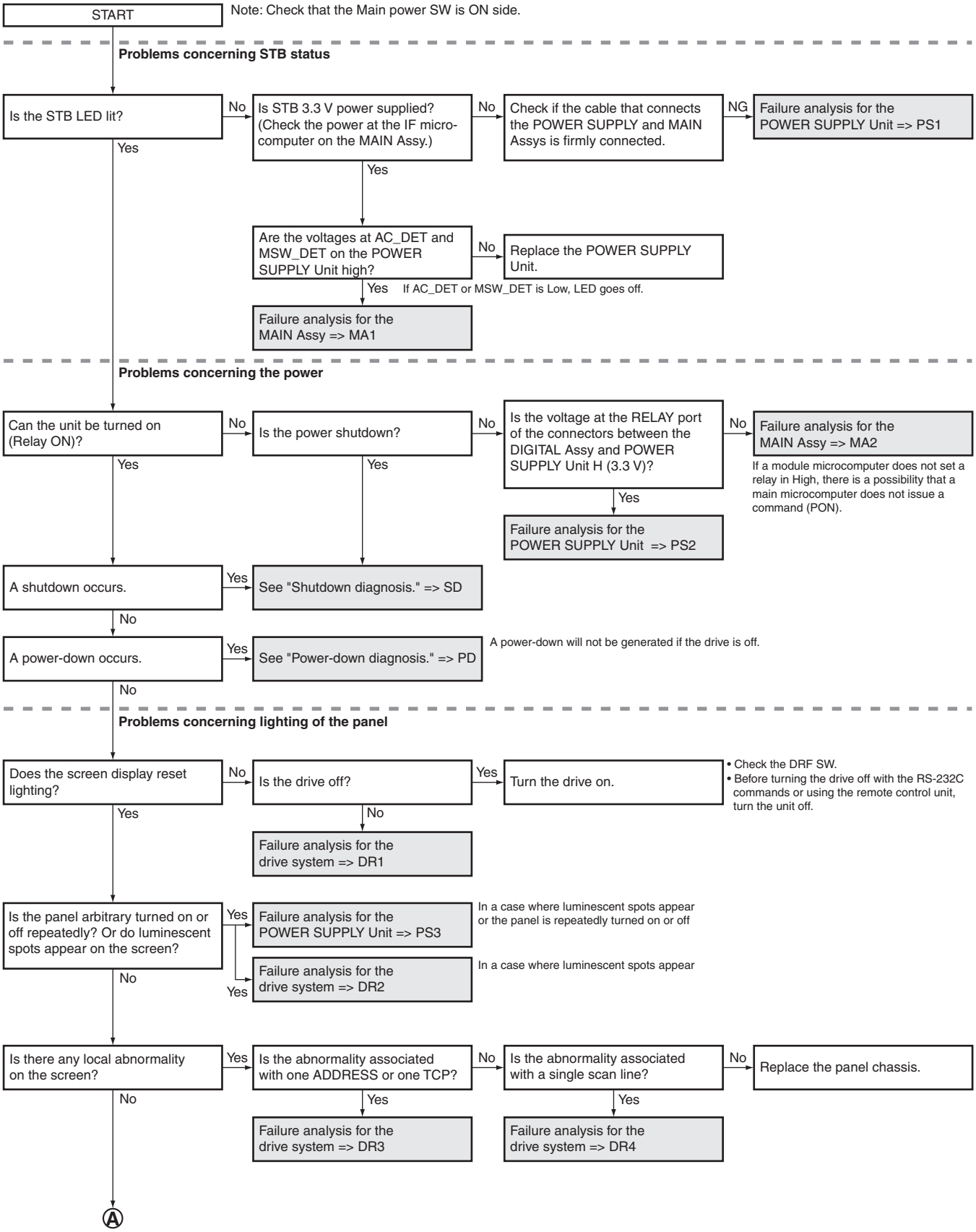
Main: RST4	ON
Main: RST2	ON
Module: RST2	ON

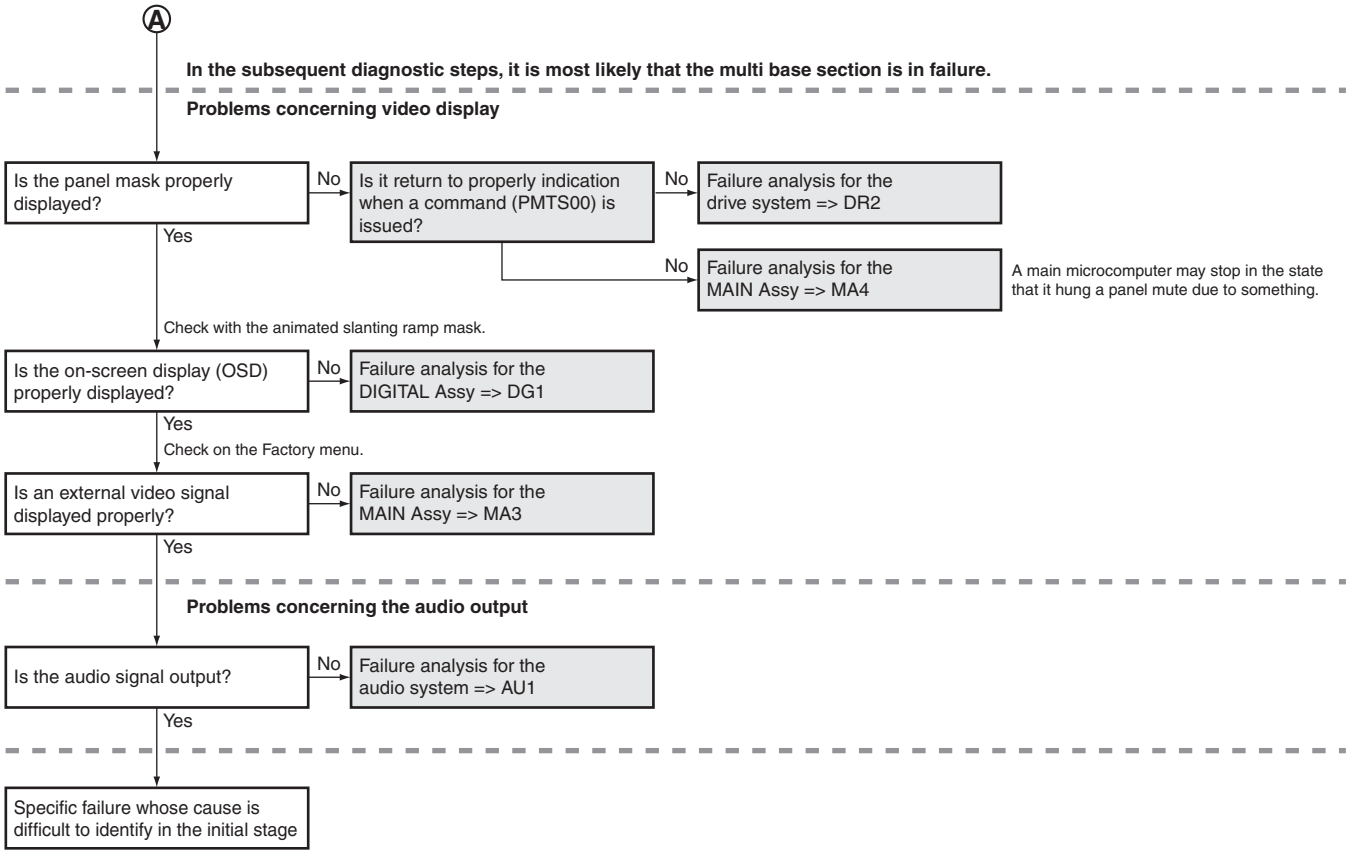


A state when it displays a picture on the PDP. (Blue LED: ON)
All devices are electrified.

5.2 DIAGNOSIS FLOWCHART OF FAILURE ANALYSIS
5.2.1 WHOLE UNIT

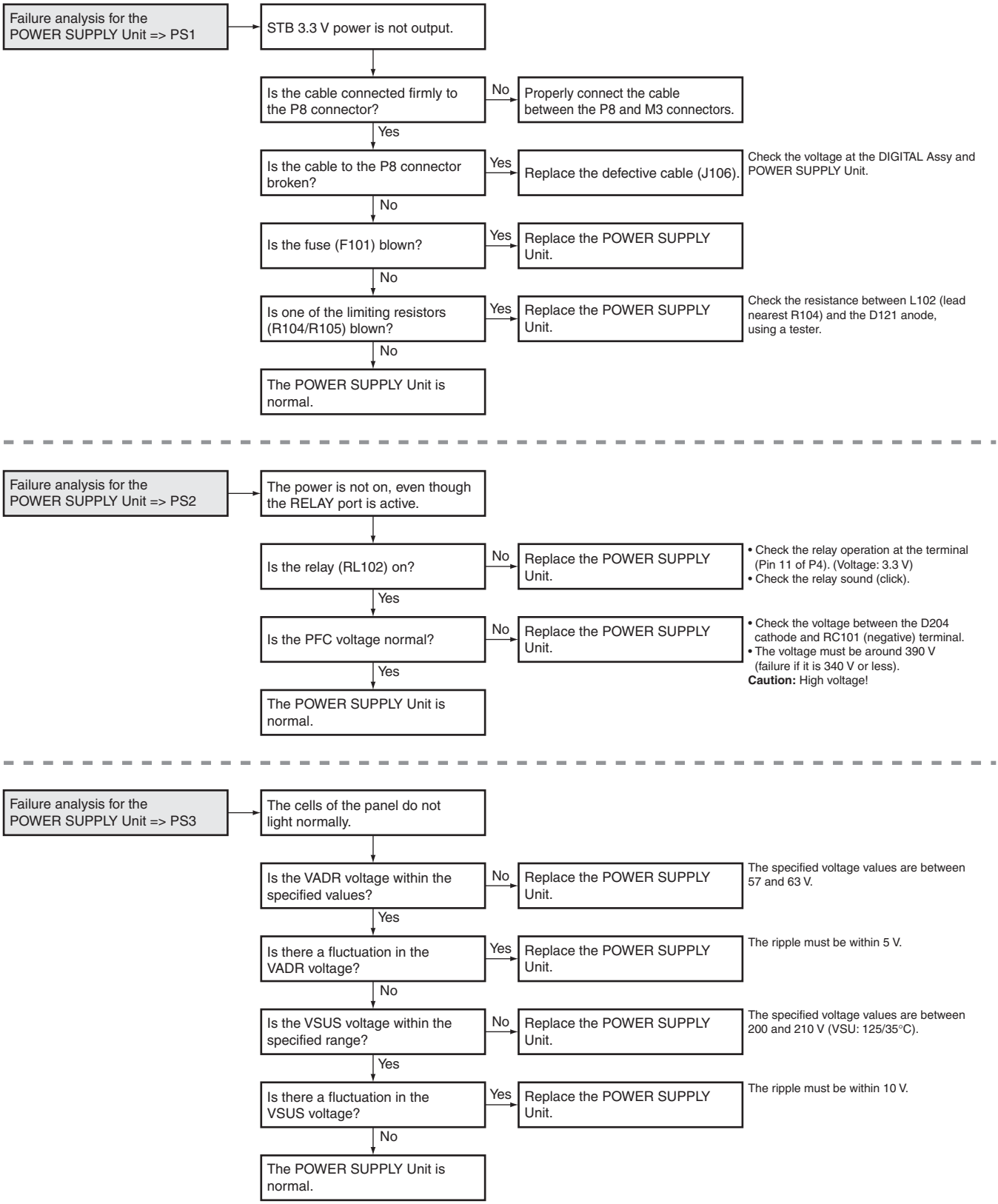
Flowchart of Failure Analysis for The Whole Unit


START
Note: Check that the Main power SW is ON side.
Problems concerning STB status
Is the STB LED lit?
No
Is STB 3.3 V power supplied? (Check the power at the IF micro-computer on the MAIN Assy.)
No
Check if the cable that connects the POWER SUPPLY and MAIN Assys is firmly connected.
NG
Failure analysis for the POWER SUPPLY Unit => PS1
Yes
Yes
Are the voltages at AC_DET and MSW_DET on the POWER SUPPLY Unit high?
No
Replace the POWER SUPPLY Unit.
Yes
If AC_DET or MSW_DET is Low, LED goes off.
Failure analysis for the MAIN Assy => MA1
Problems concerning the power
Can the unit be turned on (Relay ON)?
No
Is the power shutdown?
No
Is the voltage at the RELAY port of the connectors between the DIGITAL Assy and POWER SUPPLY Unit H (3.3 V)?
No
Failure analysis for the MAIN Assy => MA2
If a module microcomputer does not set a relay in High, there is a possibility that a main microcomputer does not issue a command (PON).
Yes
Yes
Yes
Failure analysis for the POWER SUPPLY Unit => PS2
A shutdown occurs.
Yes
See "Shutdown diagnosis." => SD
No
A power-down occurs.
Yes
See "Power-down diagnosis." => PD
A power-down will not be generated if the drive is off.
No
Problems concerning lighting of the panel
Does the screen display reset lighting?
No
Is the drive off?
Yes
Turn the drive on.
• Check the DRF SW.
• Before turning the drive off with the RS-232C commands or using the remote control unit, turn the unit off.
Yes
No
Failure analysis for the drive system => DR1
Is the panel arbitrary turned on or off repeatedly? Or do luminescent spots appear on the screen?
Yes
Failure analysis for the POWER SUPPLY Unit => PS3
In a case where luminescent spots appear or the panel is repeatedly turned on or off
No
Yes
Failure analysis for the drive system => DR2
In a case where luminescent spots appear
Is there any local abnormality on the screen?
Yes
Is the abnormality associated with one ADDRESS or one TCP?
No
Is the abnormality associated with a single scan line?
No
Replace the panel chassis.
No
Yes
Yes
Failure analysis for the drive system => DR3
Failure analysis for the drive system => DR4
Ⓐ


Ⓐ
In the subsequent diagnostic steps, it is most likely that the multi base section is in failure.
Problems concerning video display
Is the panel mask properly displayed?
No
Is it return to properly indication when a command (PMTS00) is issued?
No
Failure analysis for the drive system => DR2
Yes
No
Failure analysis for the MAIN Assy => MA4
A main microcomputer may stop in the state that it hung a panel mute due to something.
Check with the animated slanting ramp mask.
Is the on-screen display (OSD) properly displayed?
No
Failure analysis for the DIGITAL Assy => DG1
Yes
Check on the Factory menu.
Is an external video signal displayed properly?
No
Failure analysis for the MAIN Assy => MA3
Yes
Problems concerning the audio output
Is the audio signal output?
No
Failure analysis for the audio system => AU1
Yes
Specific failure whose cause is difficult to identify in the initial stage

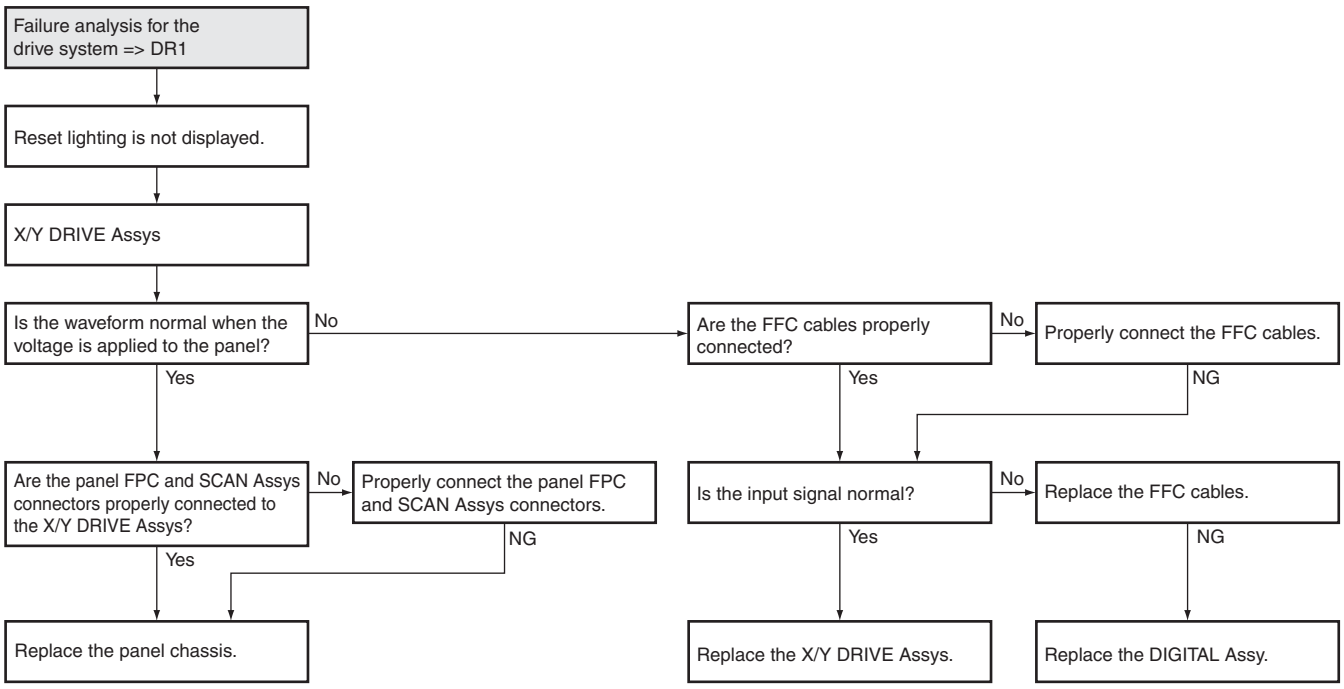
5.2.2 POWER SUPPLY UNIT

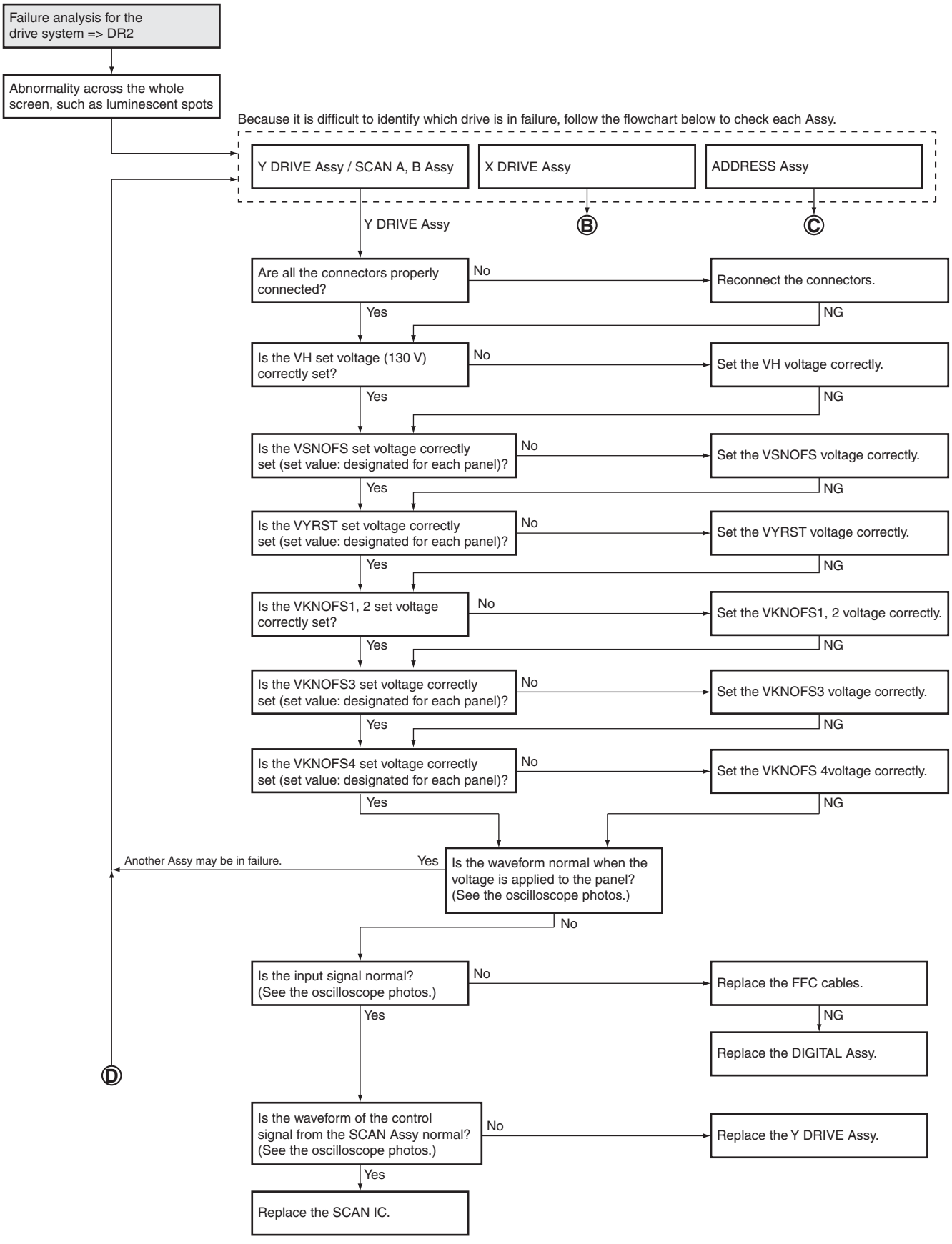
Flowchart of Failure Analysis for The POWER SUPPLY Unit

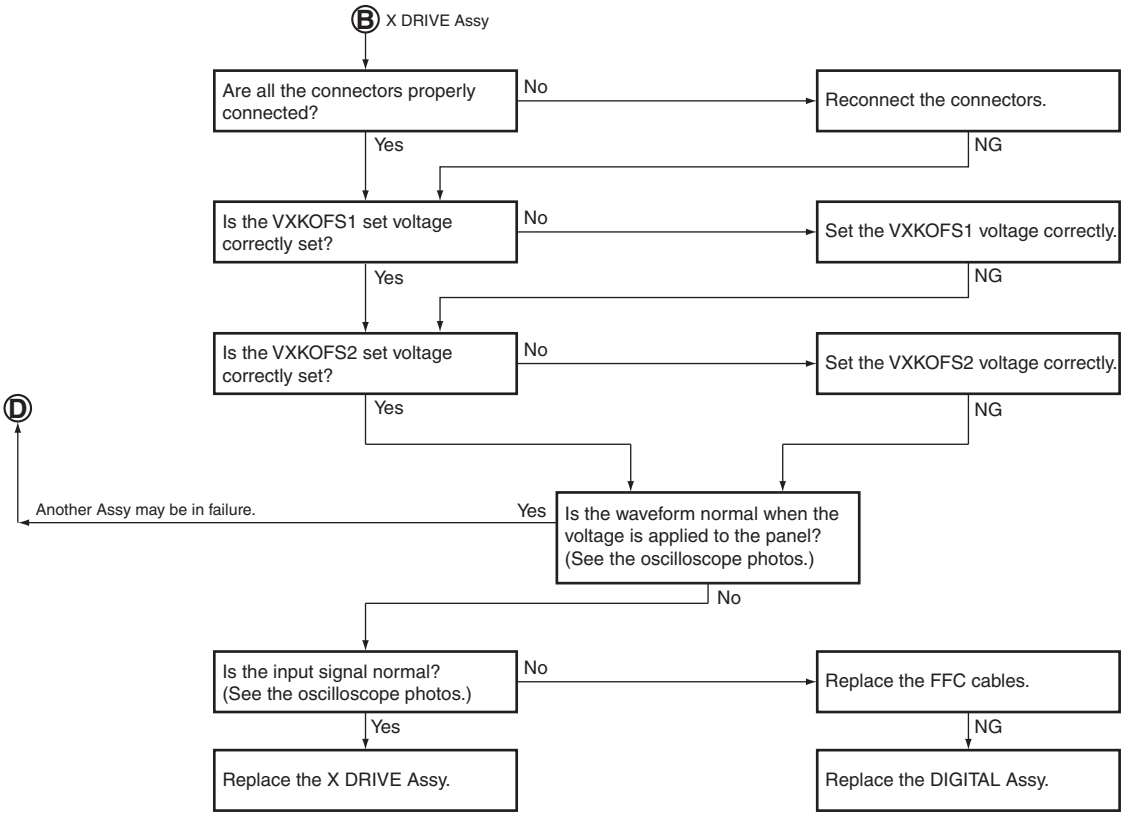

Failure analysis for the POWER SUPPLY Unit => PS1
STB 3.3 V power is not output.
Is the cable connected firmly to the P8 connector?
No
Properly connect the cable between the P8 and M3 connectors.
Yes
Is the cable to the P8 connector broken?
Yes
Replace the defective cable (J106).
Check the voltage at the DIGITAL Assy and POWER SUPPLY Unit.
No
Is the fuse (F101) blown?
Yes
Replace the POWER SUPPLY Unit.
No
Is one of the limiting resistors (R104/R105) blown?
Yes
Replace the POWER SUPPLY Unit.
Check the resistance between L102 (lead nearest R104) and the D121 anode, using a tester.
No
The POWER SUPPLY Unit is normal.
Failure analysis for the POWER SUPPLY Unit => PS2
The power is not on, even though the RELAY port is active.
Is the relay (RL102) on?
No
Replace the POWER SUPPLY Unit.
• Check the relay operation at the terminal (Pin 11 of P4). (Voltage: 3.3 V)
• Check the relay sound (click).
Yes
Is the PFC voltage normal?
No
Replace the POWER SUPPLY Unit.
• Check the voltage between the D204 cathode and RC101 (negative) terminal.
• The voltage must be around 390 V (failure if it is 340 V or less).
Caution: High voltage!
Yes
The POWER SUPPLY Unit is normal.
Failure analysis for the POWER SUPPLY Unit => PS3
The cells of the panel do not light normally.
Is the VADR voltage within the specified values?
No
Replace the POWER SUPPLY Unit.
The specified voltage values are between 57 and 63 V.
Yes
Is there a fluctuation in the VADR voltage?
Yes
Replace the POWER SUPPLY Unit.
The ripple must be within 5 V.
No
Is the VSUS voltage within the specified range?
No
Replace the POWER SUPPLY Unit.
The specified voltage values are between 200 and 210 V (VSU: 125/35°C).
Yes
Is there a fluctuation in the VSUS voltage?
Yes
Replace the POWER SUPPLY Unit.
The ripple must be within 10 V.
No
The POWER SUPPLY Unit is normal.

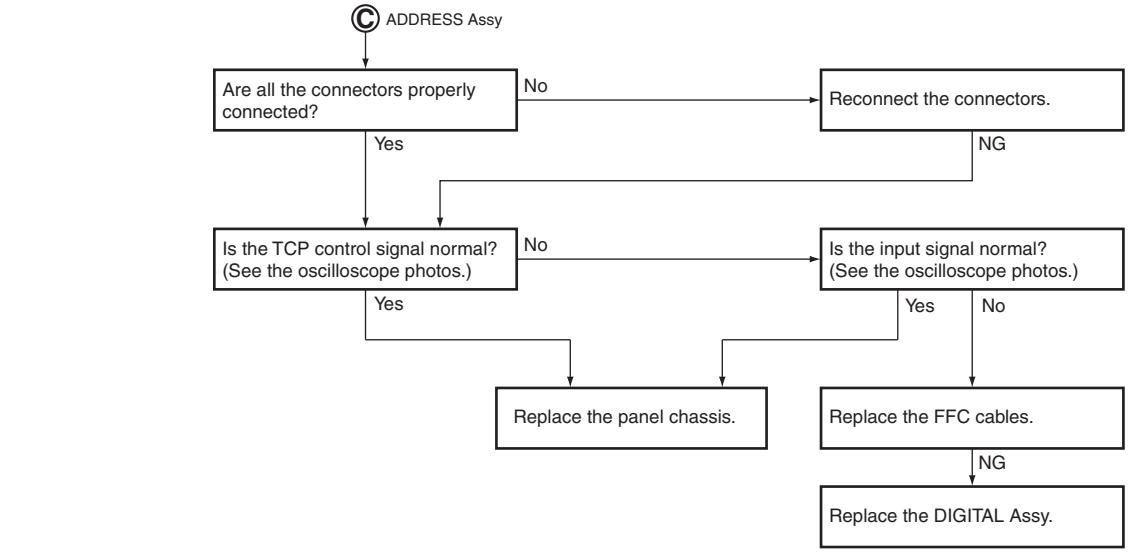
5.2.3 DRIVE ASSY

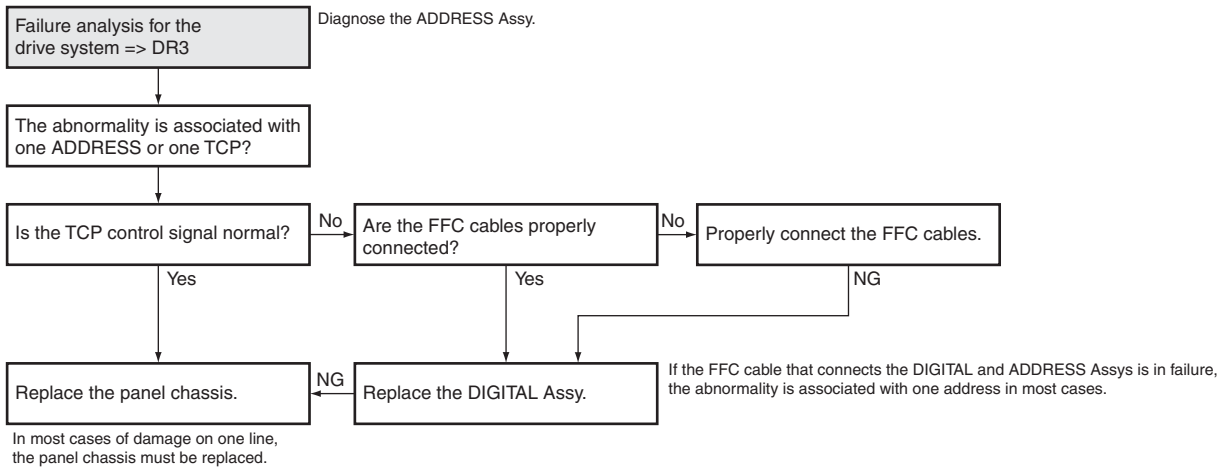
Flowchart of Failure Analysis for The Drive Assy

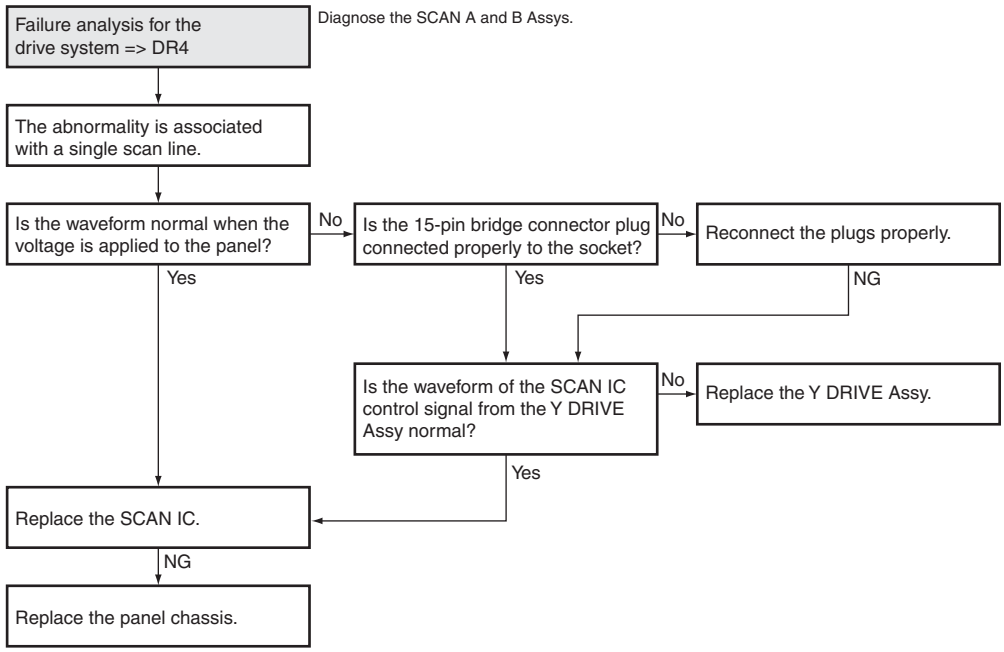

Failure analysis for the drive system => DR1
Reset lighting is not displayed.
X/Y DRIVE Assys
Is the waveform normal when the voltage is applied to the panel?
No
Yes
Are the FFC cables properly connected?
No
Properly connect the FFC cables.
Yes
NG
Are the panel FPC and SCAN Assys connectors properly connected to the X/Y DRIVE Assys?
No
Properly connect the panel FPC and SCAN Assys connectors.
NG
Yes
Is the input signal normal?
No
Replace the FFC cables.
Yes
NG
Replace the panel chassis.
Replace the X/Y DRIVE Assys.
Replace the DIGITAL Assy.


Failure analysis for the drive system => DR2
Abnormality across the whole screen, such as luminescent spots
Because it is difficult to identify which drive is in failure, follow the flowchart below to check each Assy.
Y DRIVE Assy / SCAN A, B Assy
X DRIVE Assy
ADDRESS Assy
Y DRIVE Assy
Ⓑ
Ⓒ
Are all the connectors properly connected?
No
Reconnect the connectors.
NG
Yes
Is the VH set voltage (130 V) correctly set?
No
Set the VH voltage correctly.
NG
Yes
Is the VSNOFS set voltage correctly set (set value: designated for each panel)?
No
Set the VSNOFS voltage correctly.
NG
Yes
Is the VYRST set voltage correctly set (set value: designated for each panel)?
No
Set the VYRST voltage correctly.
NG
Yes
Is the VKNOFS1, 2 set voltage correctly set?
No
Set the VKNOFS1, 2 voltage correctly.
NG
Yes
Is the VKNOFS3 set voltage correctly set (set value: designated for each panel)?
No
Set the VKNOFS3 voltage correctly.
NG
Yes
Is the VKNOFS4 set voltage correctly set (set value: designated for each panel)?
No
Set the VKNOFS 4voltage correctly.
NG
Yes
Is the waveform normal when the voltage is applied to the panel? (See the oscilloscope photos.)
Yes
Another Assy may be in failure.
No
Is the input signal normal? (See the oscilloscope photos.)
No
Replace the FFC cables.
NG
Replace the DIGITAL Assy.
Yes
Ⓓ
Is the waveform of the control signal from the SCAN Assy normal? (See the oscilloscope photos.)
No
Replace the Y DRIVE Assy.
Yes
Replace the SCAN IC.


Ⓑ X DRIVE Assy
Are all the connectors properly connected?
No
Reconnect the connectors.
Yes
NG
Is the VXKOFS1 set voltage correctly set?
No
Set the VXKOFS1 voltage correctly.
Yes
NG
Is the VXKOFS2 set voltage correctly set?
No
Set the VXKOFS2 voltage correctly.
Yes
NG
Ⓓ
Another Assy may be in failure.
Yes
Is the waveform normal when the voltage is applied to the panel? (See the oscilloscope photos.)
No
Is the input signal normal? (See the oscilloscope photos.)
No
Replace the FFC cables.
Yes
NG
Replace the X DRIVE Assy.
Replace the DIGITAL Assy.

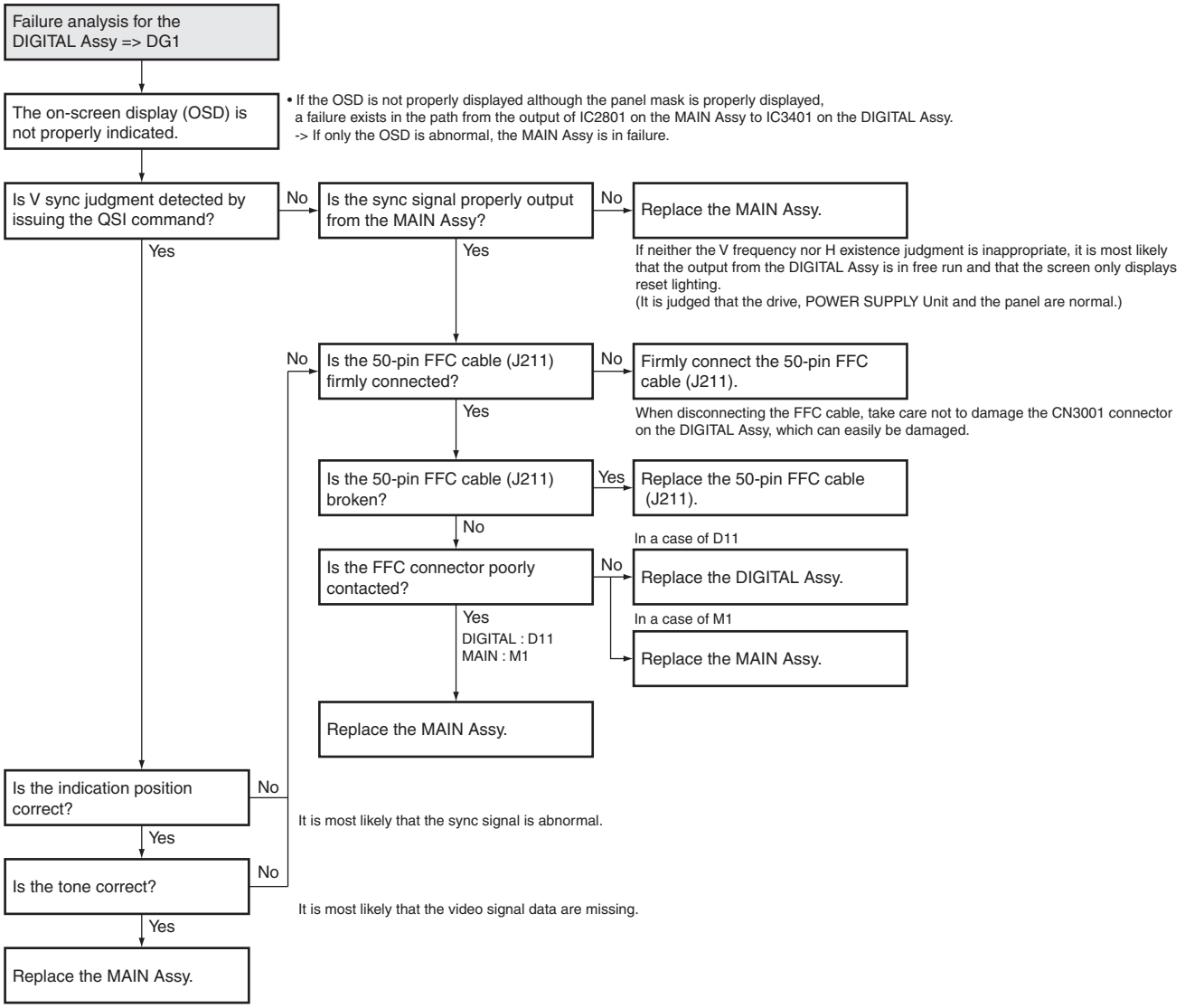

Ⓒ ADDRESS Assy
Are all the connectors properly connected?
No
Reconnect the connectors.
Yes
NG
Is the TCP control signal normal? (See the oscilloscope photos.)
No
Is the input signal normal? (See the oscilloscope photos.)
Yes
Yes
No
Replace the panel chassis.
Replace the FFC cables.
NG
Replace the DIGITAL Assy.


Failure analysis for the drive system => DR3
Diagnose the ADDRESS Assy.
The abnormality is associated with one ADDRESS or one TCP?
Is the TCP control signal normal?
No
Are the FFC cables properly connected?
No
Properly connect the FFC cables.
Yes
Yes
NG
Replace the panel chassis.
NG
Replace the DIGITAL Assy.
If the FFC cable that connects the DIGITAL and ADDRESS Assys is in failure, the abnormality is associated with one address in most cases.
In most cases of damage on one line, the panel chassis must be replaced.


Failure analysis for the drive system => DR4
Diagnose the SCAN A and B Assys.
The abnormality is associated with a single scan line.
Is the waveform normal when the voltage is applied to the panel?
No
Is the 15-pin bridge connector plug connected properly to the socket?
No
Reconnect the plugs properly.
Yes
Yes
NG
Is the waveform of the SCAN IC control signal from the Y DRIVE Assy normal?
No
Replace the Y DRIVE Assy.
Yes
Replace the SCAN IC.
NG
Replace the panel chassis.

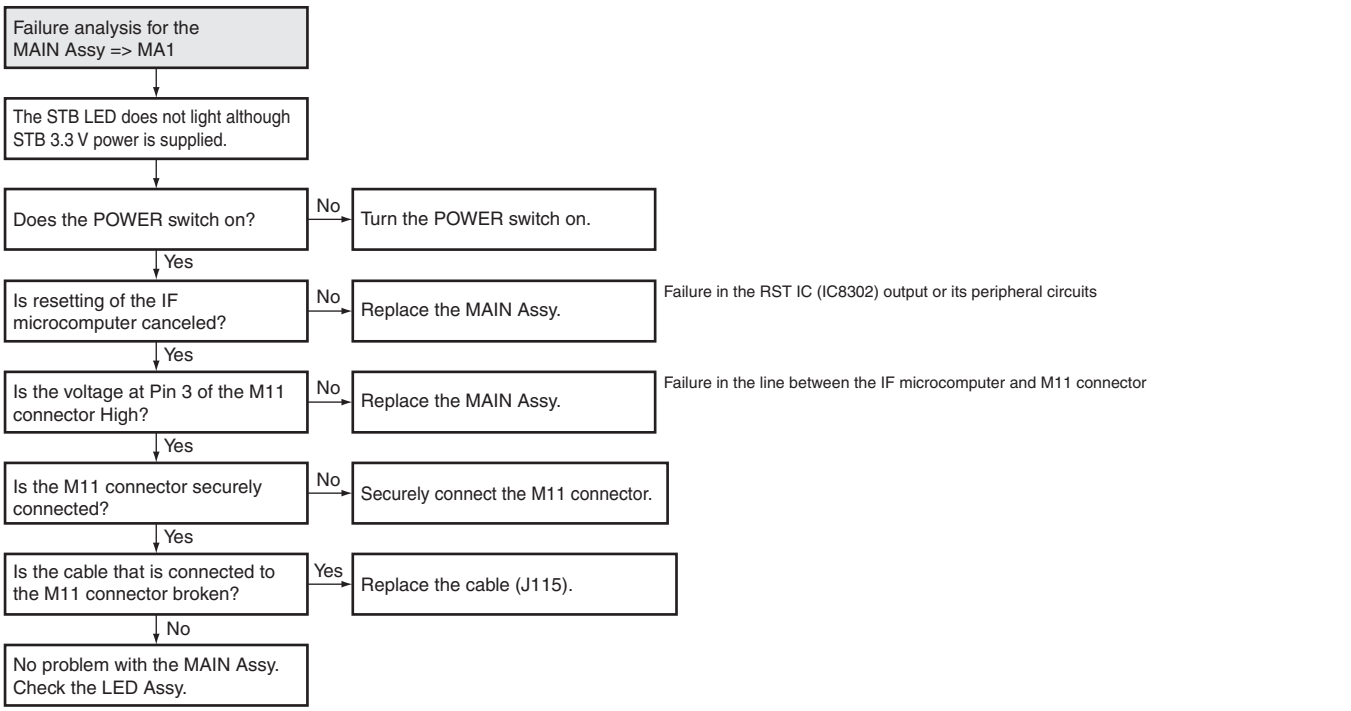
5.2.4 DIGITAL ASSY

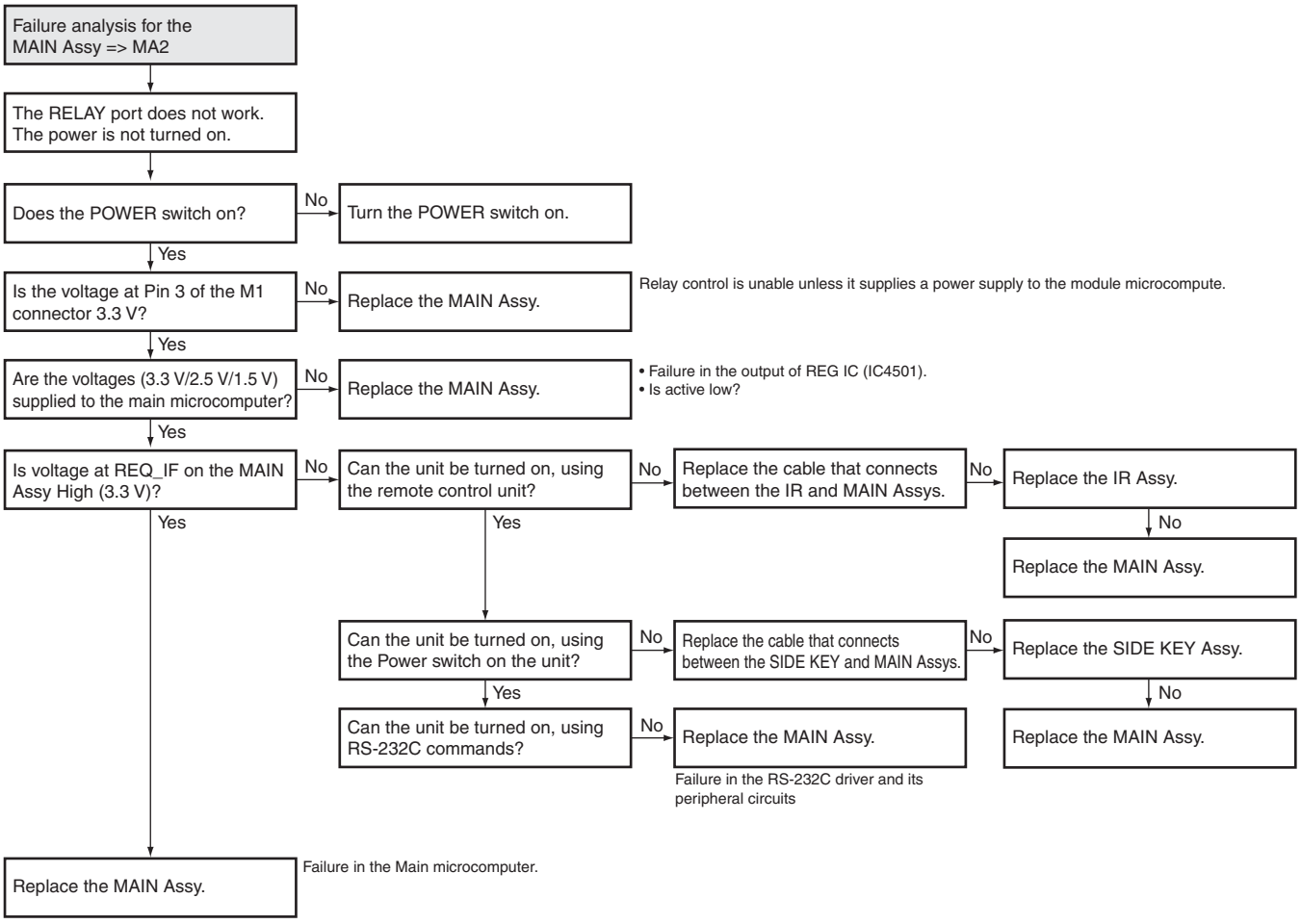
Flowchart of Failure Analysis for The DIGITAL Assy


Failure analysis for the DIGITAL Assy => DG1
The on-screen display (OSD) is not properly indicated.
• If the OSD is not properly displayed although the panel mask is properly displayed, a failure exists in the path from the output of IC2801 on the MAIN Assy to IC3401 on the DIGITAL Assy.
-> If only the OSD is abnormal, the MAIN Assy is in failure.
Is V sync judgment detected by issuing the QSI command?
No
Is the sync signal properly output from the MAIN Assy?
No
Replace the MAIN Assy.
Yes
Yes
If neither the V frequency nor H existence judgment is inappropriate, it is most likely that the output from the DIGITAL Assy is in free run and that the screen only displays reset lighting.
(It is judged that the drive, POWER SUPPLY Unit and the panel are normal.)
No
Is the 50-pin FFC cable (J211) firmly connected?
No
Firmly connect the 50-pin FFC cable (J211).
Yes
When disconnecting the FFC cable, take care not to damage the CN3001 connector on the DIGITAL Assy, which can easily be damaged.
Is the 50-pin FFC cable (J211) broken?
Yes
Replace the 50-pin FFC cable (J211).
No
In a case of D11
Is the FFC connector poorly contacted?
No
Replace the DIGITAL Assy.
In a case of M1
Yes
DIGITAL : D11
MAIN : M1
Replace the MAIN Assy.
Replace the MAIN Assy.
Is the indication position correct?
No
It is most likely that the sync signal is abnormal.
Yes
Is the tone correct?
No
It is most likely that the video signal data are missing.
Yes
Replace the MAIN Assy.

5.2.5 MAIN ASSY

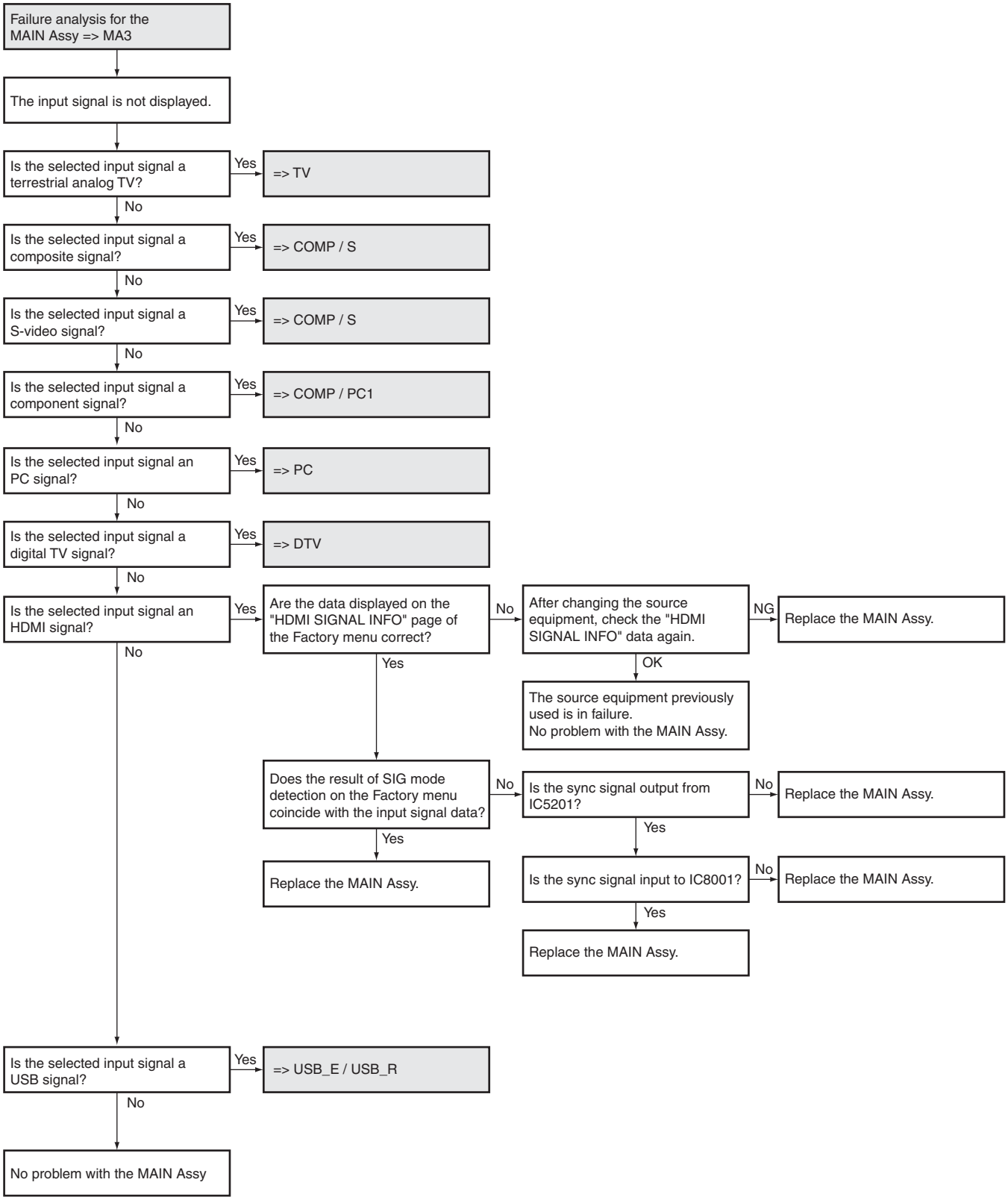
Flowchart of Failure Analysis for The MAIN Assy


Failure analysis for the MAIN Assy => MA1
The STB LED does not light although STB 3.3 V power is supplied.
Does the POWER switch on?
No
Turn the POWER switch on.
Yes
Is resetting of the IF microcomputer canceled?
No
Replace the MAIN Assy.
Failure in the RST IC (IC8302) output or its peripheral circuits
Yes
Is the voltage at Pin 3 of the M11 connector High?
No
Replace the MAIN Assy.
Failure in the line between the IF microcomputer and M11 connector
Yes
Is the M11 connector securely connected?
No
Securely connect the M11 connector.
Yes
Is the cable that is connected to the M11 connector broken?
Yes
Replace the cable (J115).
No
No problem with the MAIN Assy. Check the LED Assy.


Failure analysis for the MAIN Assy => MA2
The RELAY port does not work. The power is not turned on.
Does the POWER switch on?
No
Turn the POWER switch on.
Yes
Is the voltage at Pin 3 of the M1 connector 3.3 V?
No
Replace the MAIN Assy.
Relay control is unable unless it supplies a power supply to the module microcompute.
Yes
Are the voltages (3.3 V/2.5 V/1.5 V) supplied to the main microcomputer?
No
Replace the MAIN Assy.
• Failure in the output of REG IC (IC4501).
• Is active low?
Yes
Is voltage at REQ_IF on the MAIN Assy High (3.3 V)?
No
Can the unit be turned on, using the remote control unit?
No
Replace the cable that connects between the IR and MAIN Assys.
No
Replace the IR Assy.
No
Replace the MAIN Assy.
Yes
Yes
Can the unit be turned on, using the Power switch on the unit?
No
Replace the cable that connects between the SIDE KEY and MAIN Assys.
No
Replace the SIDE KEY Assy.
No
Replace the MAIN Assy.
Yes
Can the unit be turned on, using RS-232C commands?
No
Replace the MAIN Assy.
Failure in the RS-232C driver and its peripheral circuits
Yes
Replace the MAIN Assy.
Failure in the Main microcomputer.

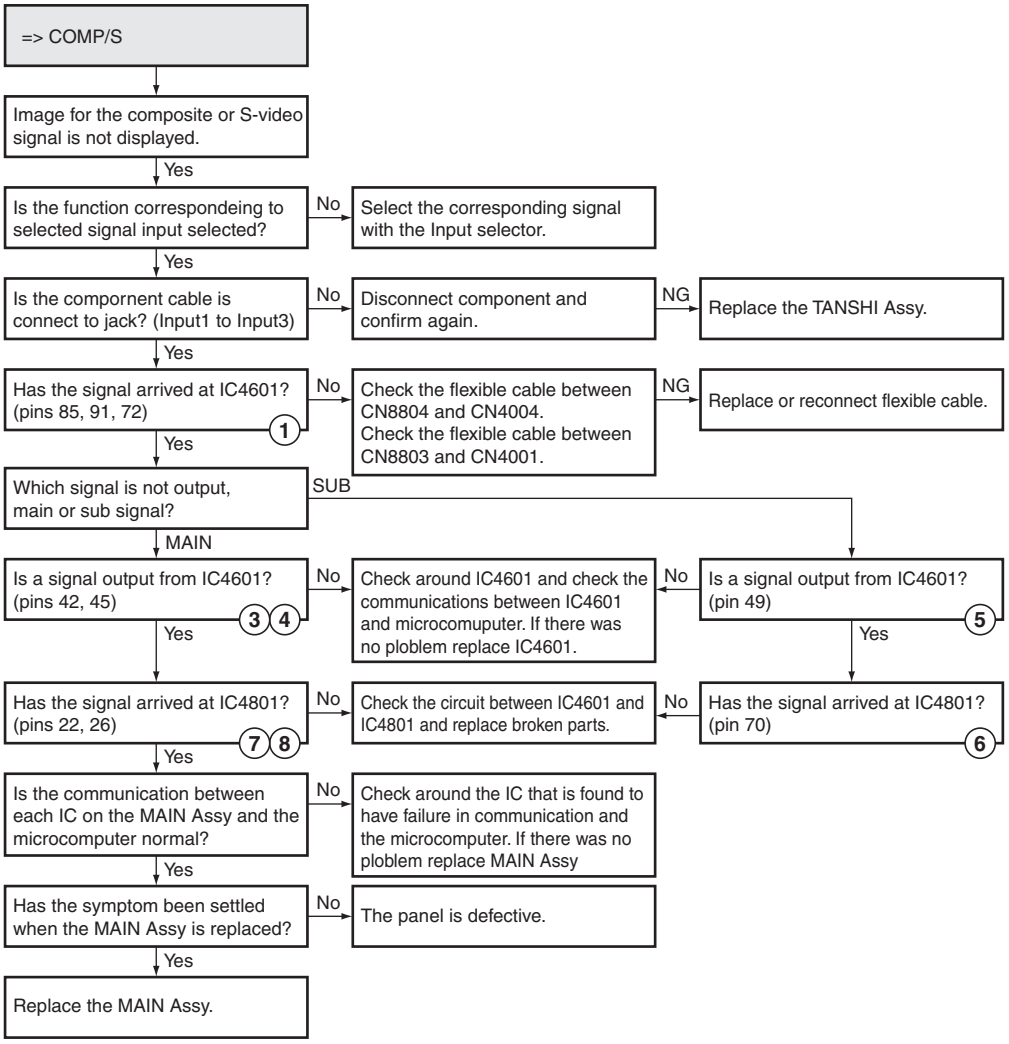
5.2.6 VIDEO SYSTEM

Flowchart of Failure Analysis for The Video System


Failure analysis for the MAIN Assy => MA3
The input signal is not displayed.
Is the selected input signal a terrestrial analog TV?
Yes
=> TV
No
Is the selected input signal a composite signal?
Yes
=> COMP / S
No
Is the selected input signal a S-video signal?
Yes
=> COMP / S
No
Is the selected input signal a component signal?
Yes
=> COMP / PC1
No
Is the selected input signal an PC signal?
Yes
=> PC
No
Is the selected input signal a digital TV signal?
Yes
=> DTV
No
Is the selected input signal an HDMI signal?
Yes
Are the data displayed on the "HDMI SIGNAL INFO" page of the Factory menu correct?
No
After changing the source equipment, check the "HDMI SIGNAL INFO" data again.
NG
Replace the MAIN Assy.
OK
The source equipment previously used is in failure.
No problem with the MAIN Assy.
Yes
Does the result of SIG mode detection on the Factory menu coincide with the input signal data?
No
Is the sync signal output from IC5201?
No
Replace the MAIN Assy.
Yes
Replace the MAIN Assy.
Is the sync signal input to IC8001?
No
Replace the MAIN Assy.
Yes
Replace the MAIN Assy.
No
Is the selected input signal a USB signal?
Yes
=> USB_E / USB_R
No
No problem with the MAIN Assy

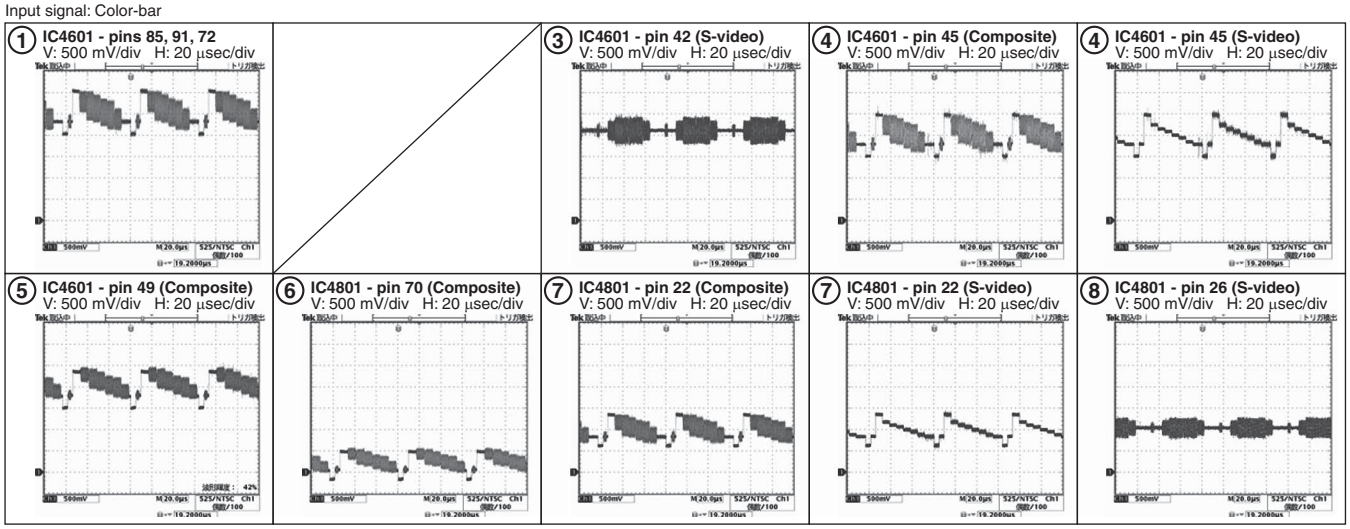
Flowchart of Failure Analysis for The Video System

No video from Composite or S-VIDEO

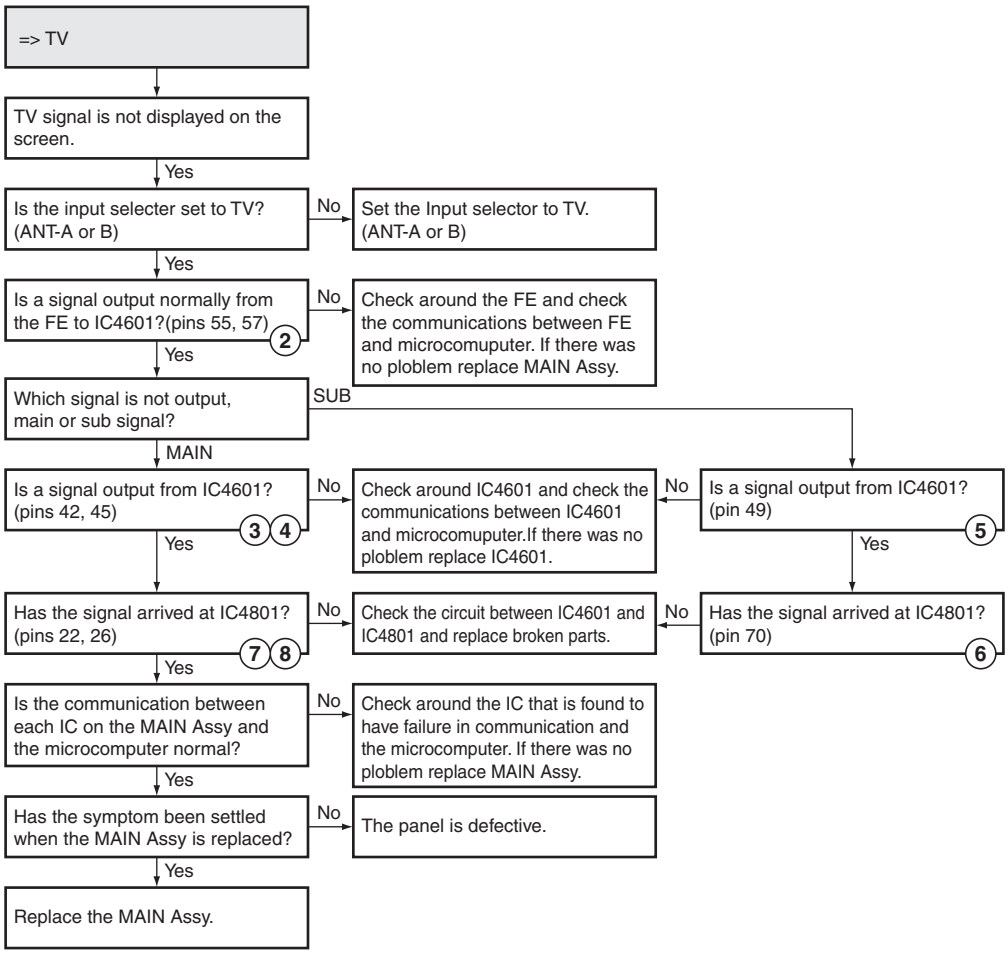

=> COMP/S
Image for the composite or S-video signal is not displayed.
Yes
Is the function correspondeing to selected signal input selected?
No
Select the corresponding signal with the Input selector.
Yes
Is the compornent cable is connect to jack? (Input1 to Input3)
No
Disconnect component and confirm again.
NG
Replace the TANSHI Assy.
Yes
Has the signal arrived at IC4601? (pins 85, 91, 72)
1
No
Check the flexible cable between CN8804 and CN4004. Check the flexible cable between CN8803 and CN4001.
NG
Replace or reconnect flexible cable.
Yes
Which signal is not output, main or sub signal?
SUB
MAIN
Is a signal output from IC4601? (pins 42, 45)
3 4
No
Check around IC4601 and check the communications between IC4601 and microcomuputer. If there was no ploblem replace IC4601.
No
Is a signal output from IC4601? (pin 49)
5
Yes
Has the signal arrived at IC4801? (pins 22, 26)
7 8
No
Check the circuit between IC4601 and IC4801 and replace broken parts.
No
Has the signal arrived at IC4801? (pin 70)
6
Yes
Is the communication between each IC on the MAIN Assy and the microcomputer normal?
No
Check around the IC that is found to have failure in communication and the microcomputer. If there was no ploblem replace MAIN Assy
Yes
Has the symptom been settled when the MAIN Assy is replaced?
No
The panel is defective.
Yes
Replace the MAIN Assy.

● Waveforms

Input signal: Color-bar

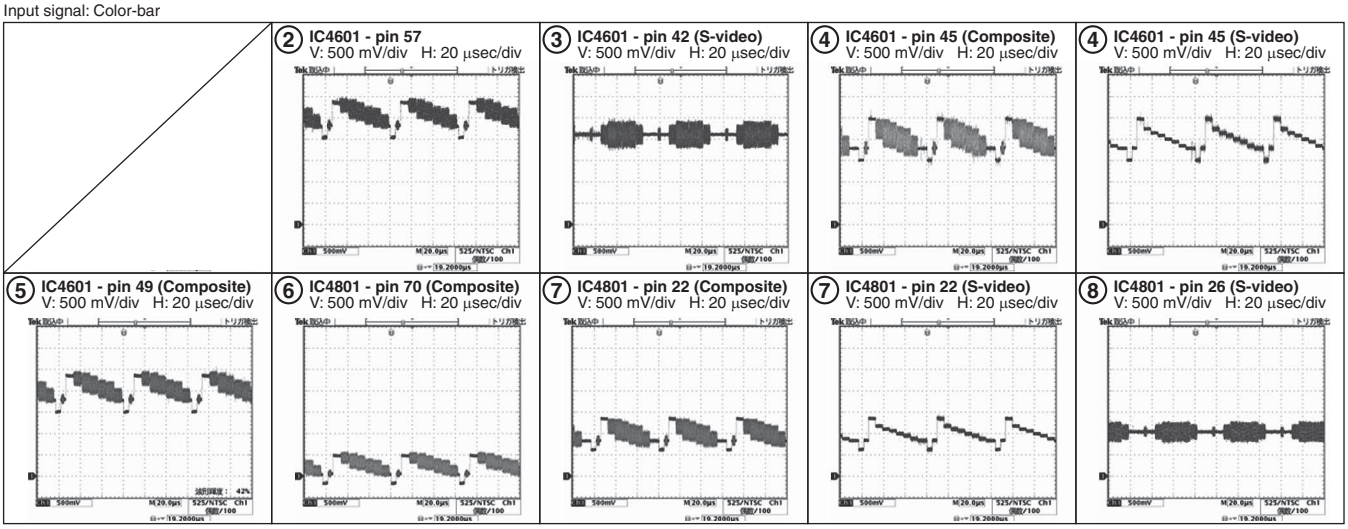

1 IC4601 - pins 85, 91, 72
V: 500 mV/div H: 20 µsec/div
3 IC4601 - pin 42 (S-video)
V: 500 mV/div H: 20 µsec/div
4 IC4601 - pin 45 (Composite)
V: 500 mV/div H: 20 µsec/div
4 IC4601 - pin 45 (S-video)
V: 500 mV/div H: 20 µsec/div
5 IC4601 - pin 49 (Composite)
V: 500 mV/div H: 20 µsec/div
6 IC4801 - pin 70 (Composite)
V: 500 mV/div H: 20 µsec/div
7 IC4801 - pin 22 (Composite)
V: 500 mV/div H: 20 µsec/div
7 IC4801 - pin 22 (S-video)
V: 500 mV/div H: 20 µsec/div
8 IC4801 - pin 26 (S-video)
V: 500 mV/div H: 20 µsec/div

No video from TV signal


=> TV
TV signal is not displayed on the screen.
Yes
Is the input selecter set to TV? (ANT-A or B)
No
Set the Input selector to TV. (ANT-A or B)
Yes
Is a signal output normally from the FE to IC4601?(pins 55, 57)
2
No
Check around the FE and check the communications between FE and microcomuputer. If there was no ploblem replace MAIN Assy.
Yes
Which signal is not output, main or sub signal?
SUB
MAIN
Is a signal output from IC4601? (pins 42, 45)
3 4
No
Check around IC4601 and check the communications between IC4601 and microcomuputer.If there was no ploblem replace IC4601.
Yes
Is a signal output from IC4601? (pin 49)
5
No
Yes
Has the signal arrived at IC4801? (pins 22, 26)
7 8
No
Check the circuit between IC4601 and IC4801 and replace broken parts.
Has the signal arrived at IC4801? (pin 70)
6
No
Yes
Is the communication between each IC on the MAIN Assy and the microcomputer normal?
No
Check around the IC that is found to have failure in communication and the microcomputer. If there was no ploblem replace MAIN Assy.
Yes
Has the symptom been settled when the MAIN Assy is replaced?
No
The panel is defective.
Yes
Replace the MAIN Assy.

● Waveforms

Input signal: Color-bar


② IC4601 - pin 57
V: 500 mV/div H: 20 µsec/div
③ IC4601 - pin 42 (S-video)
V: 500 mV/div H: 20 µsec/div
④ IC4601 - pin 45 (Composite)
V: 500 mV/div H: 20 µsec/div
④ IC4601 - pin 45 (S-video)
V: 500 mV/div H: 20 µsec/div
⑤ IC4601 - pin 49 (Composite)
V: 500 mV/div H: 20 µsec/div
⑥ IC4801 - pin 70 (Composite)
V: 500 mV/div H: 20 µsec/div
⑦ IC4801 - pin 22 (Composite)
V: 500 mV/div H: 20 µsec/div
⑦ IC4801 - pin 22 (S-video)
V: 500 mV/div H: 20 µsec/div
⑧ IC4801 - pin 26 (S-video)
V: 500 mV/div H: 20 µsec/div

=> COMP/PC1

Image for the component signals is not displayed.

Yes

Is the function corresponding to selected signal input selected? — No → Select the corresponding signal with the input selector.

Yes

Has the signal arrived at IC4701 ? — No → Check the communication between the CN8804 and CN4004 or between CN8803 and CN4001 or around of jack. — No → Replace flexible cable.

Yes

Is a signal output from IC4701? (pins 30, 32, 34) (13)(14)(15) — No → Check around IC4701 and check the communications between IC4701 and the microcomputer. If there was no ploblem replace IC4701.

Yes

Has the signal arrived at IC5001? (pins 43, 48, 54) (16)(17)(18) — No → Check the circuit between IC4901 and IC5001 and replace broken parts.

Yes

Is the communication between each IC on the MAIN Assy and the microcomputer nomal? — No → Check around the IC that is found to have a failure in communication and the microcomputer. If there was no ploblem replace MAIN Assy.

Yes

Has the symptom been settled when the MAIN Assy is replaced? — No → The panel is defective.

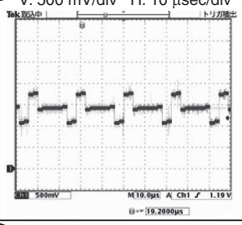
Yes

Replace the MAIN Assy.

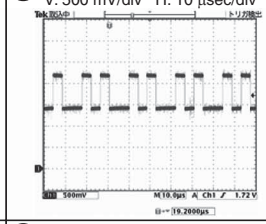
● Waveforms

Input signal: Color-bar

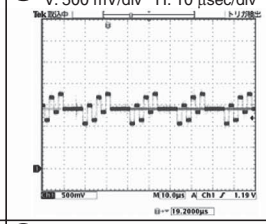
(13) IC4701 - pin 30 (component_PR)
V: 500 mV/div H: 10 µsec/div



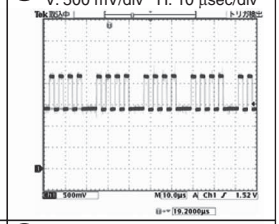
(13) IC4701 - pin 30 (PC_R)
V: 500 mV/div H: 10 µsec/div



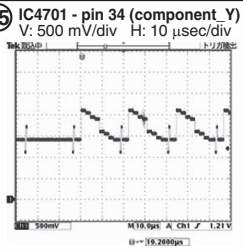
(14) IC4701 - pin 32 (component_Pb)
V: 500 mV/div H: 10 µsec/div



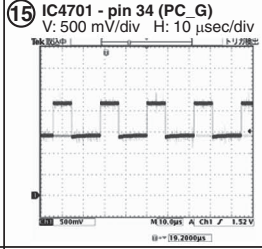
(14) IC4701 - pin 32 (PC_B)
V: 500 mV/div H: 10 µsec/div



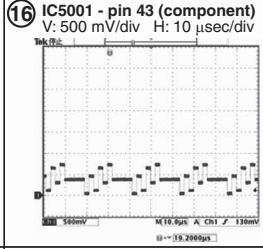
(15) IC4701 - pin 34 (component_Y)
V: 500 mV/div H: 10 µsec/div



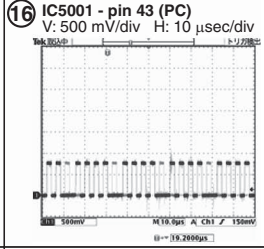
(15) IC4701 - pin 34 (PC_G)
V: 500 mV/div H: 10 µsec/div



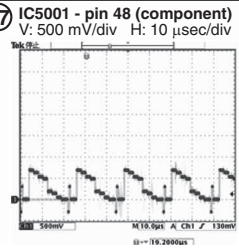
(16) IC5001 - pin 43 (component)
V: 500 mV/div H: 10 µsec/div



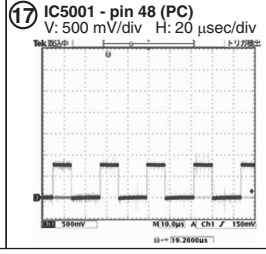
(16) IC5001 - pin 43 (PC)
V: 500 mV/div H: 10 µsec/div



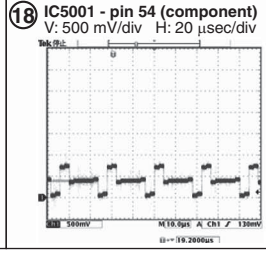
(17) IC5001 - pin 48 (component)
V: 500 mV/div H: 10 µsec/div



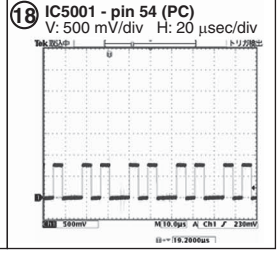
(17) IC5001 - pin 48 (PC)
V: 500 mV/div H: 20 µsec/div



(18) IC5001 - pin 54 (component)
V: 500 mV/div H: 20 µsec/div



(18) IC5001 - pin 54 (PC)
V: 500 mV/div H: 20 µsec/div



=> PC

Image for the PC signal is not displayed.

Yes

Is the function corresponding to selected signal input selected? — No → Select the corresponding signal with the input selector.

Yes

Has the signal arrived at IC4701? (pins 30, 32, 34) ⑩⑪⑫ — No → Check the communication between the CN4701 and around IC4901.

Yes

Is a signal output from IC4701? (pin 41, 43, 45) ⑬⑭⑮ — No → Check around IC4701 and check the communications between IC4701 and the microcomputer. If there was no ploblem replace IC4701.

Yes

Has the signal arrived at IC5001? (pin 43, 48, 54) ⑯⑰⑱ — No → Check the circuit between IC4701 and IC5001 and replace broken parts.

Yes

Is the communication between each IC on the MAIN Assy and the microcomputer nomal? — No → Check around the IC that is found to have a failure in communication and the microcomputer. If there was no ploblem replace MAIN Assy.

Yes

Has the symptom been settled when the MAIN Assy is replaced? — No → The panel is defective.

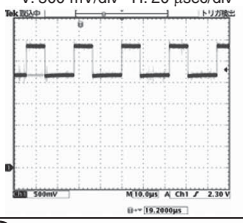
Yes

Replace the MAIN Assy.

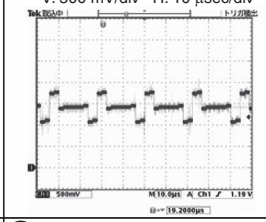
● Waveforms

Input signal: Color-bar

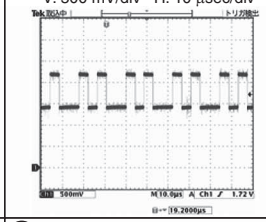
⑩ **IC4701 - pin 64 (PC_G)** V: 500 mV/div H: 20 µsec/div



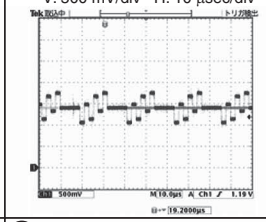
⑬ **IC4701 - pin 30 (component_PR)** V: 500 mV/div H: 10 µsec/div



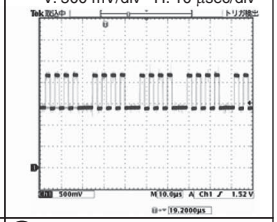
⑬ **IC4701 - pin 30 (PC_R)** V: 500 mV/div H: 10 µsec/div



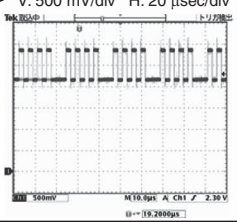
⑭ **IC4701 - pin 32 (component_Pb)** V: 500 mV/div H: 10 µsec/div



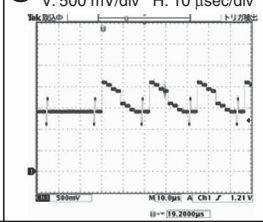
⑭ **IC4701 - pin 32 (PC_B)** V: 500 mV/div H: 10 µsec/div



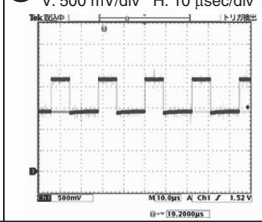
⑪ **IC4701 - pin 66 (PC_B)** V: 500 mV/div H: 20 µsec/div



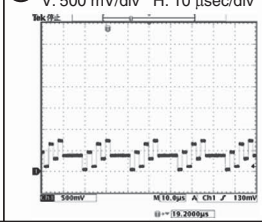
⑮ **IC4701 - pin 34 (component_Y)** V: 500 mV/div H: 10 µsec/div



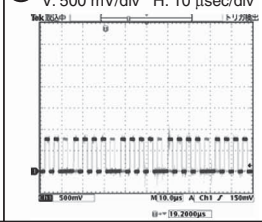
⑮ **IC4701 - pin 34 (PC_G)** V: 500 mV/div H: 10 µsec/div



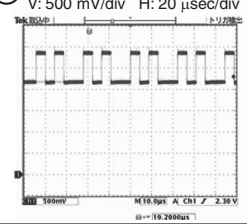
⑯ **IC5001 - pin 43 (component)** V: 500 mV/div H: 10 µsec/div



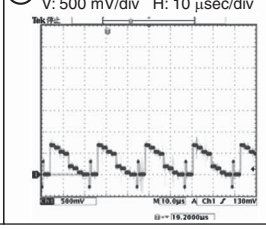
⑯ **IC5001 - pin 43 (PC)** V: 500 mV/div H: 10 µsec/div



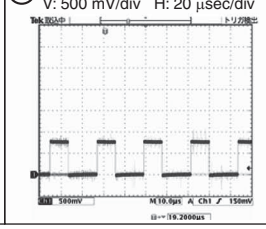
⑫ **IC4701 - pin 68 (PC_R)** V: 500 mV/div H: 20 µsec/div



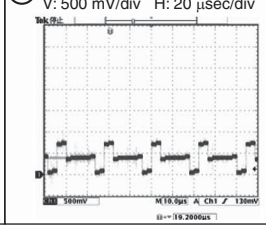
⑰ **IC5001 - pin 48 (component)** V: 500 mV/div H: 10 µsec/div



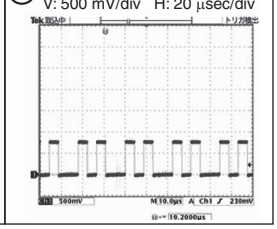
⑰ **IC5001 - pin 48 (PC)** V: 500 mV/div H: 20 µsec/div

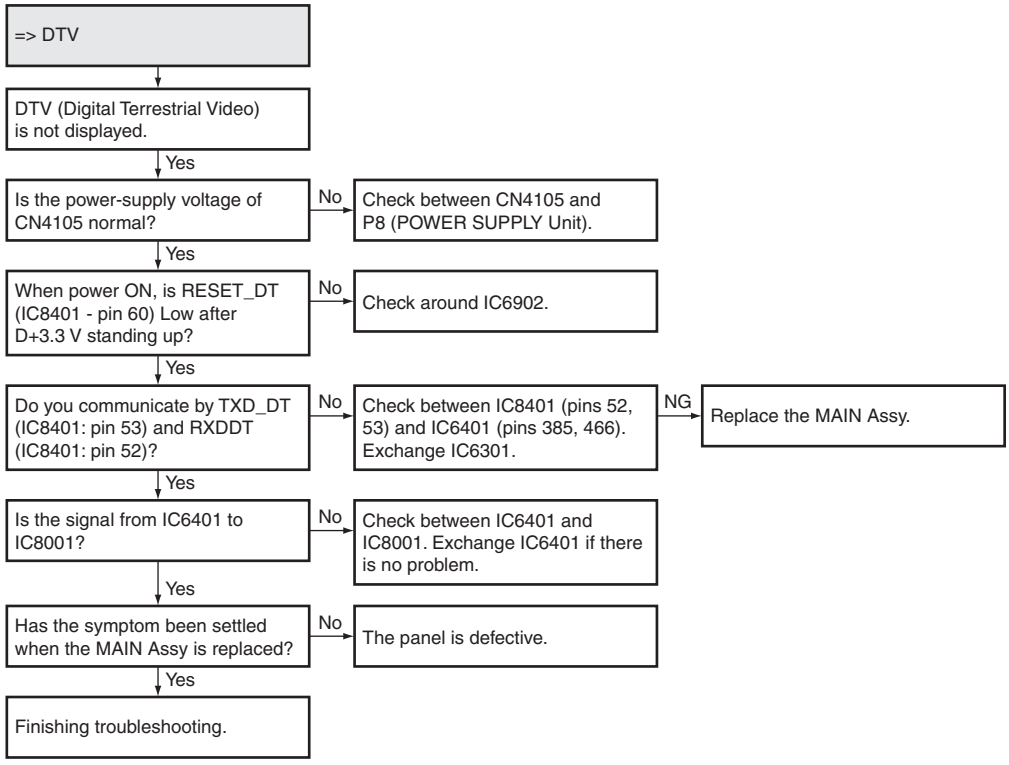


⑱ **IC5001 - pin 54 (component)** V: 500 mV/div H: 20 µsec/div

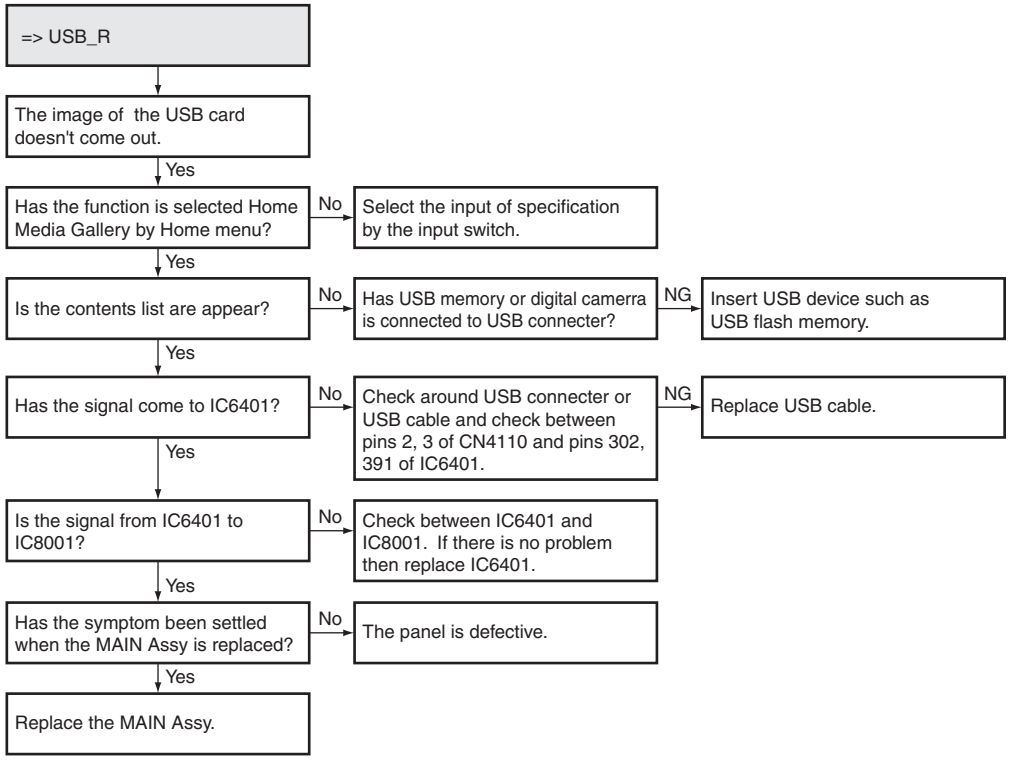


⑱ **IC5001 - pin 54 (PC)** V: 500 mV/div H: 20 µsec/div



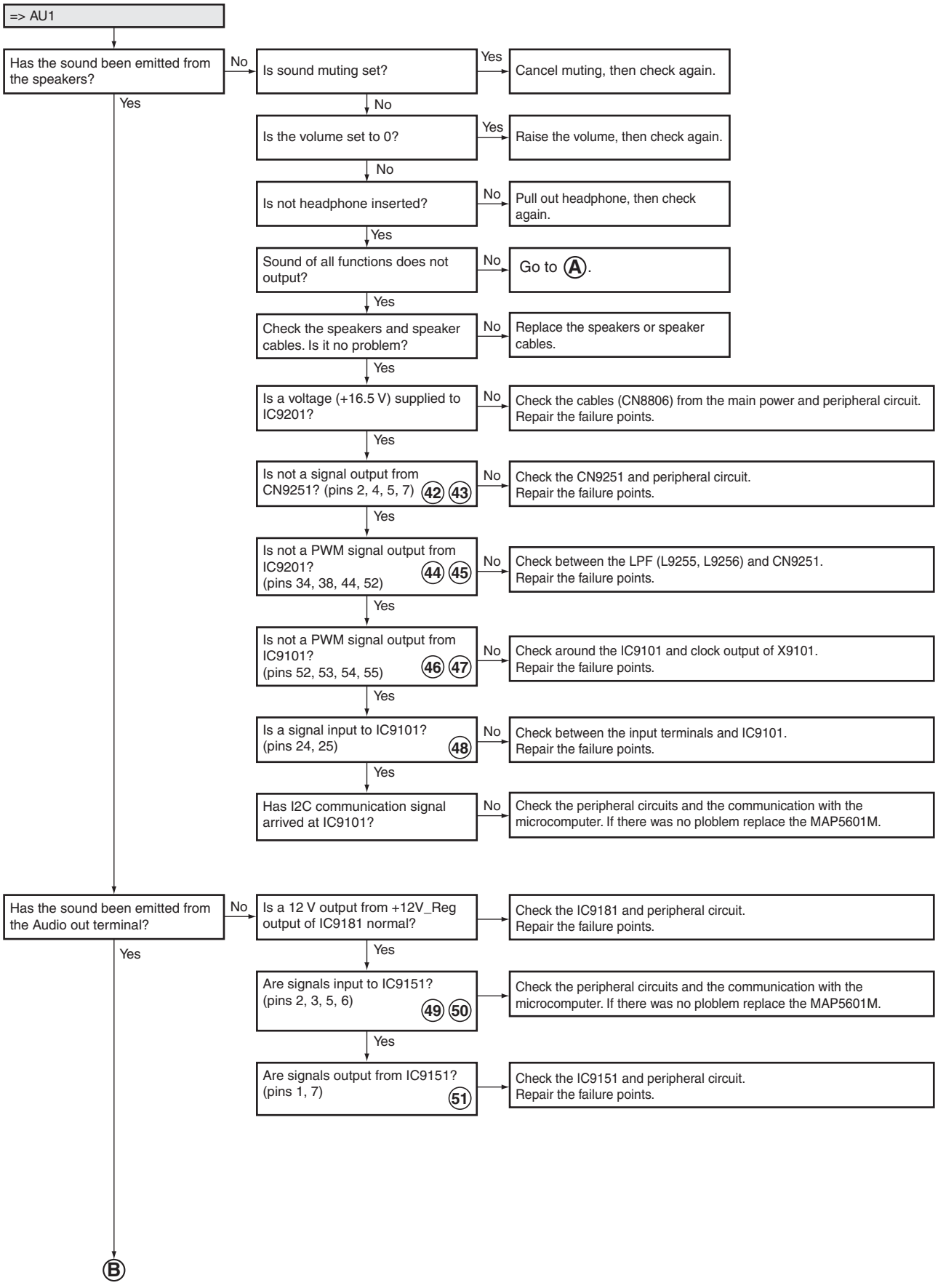

=> DTV
DTV (Digital Terrestrial Video) is not displayed.
Yes
Is the power-supply voltage of CN4105 normal?
No
Check between CN4105 and P8 (POWER SUPPLY Unit).
Yes
When power ON, is RESET_DT (IC8401 - pin 60) Low after D+3.3 V standing up?
No
Check around IC6902.
Yes
Do you communicate by TXD_DT (IC8401: pin 53) and RXDDT (IC8401: pin 52)?
No
Check between IC8401 (pins 52, 53) and IC6401 (pins 385, 466). Exchange IC6301.
NG
Replace the MAIN Assy.
Yes
Is the signal from IC6401 to IC8001?
No
Check between IC6401 and IC8001. Exchange IC6401 if there is no problem.
Yes
Has the symptom been settled when the MAIN Assy is replaced?
No
The panel is defective.
Yes
Finishing troubleshooting.

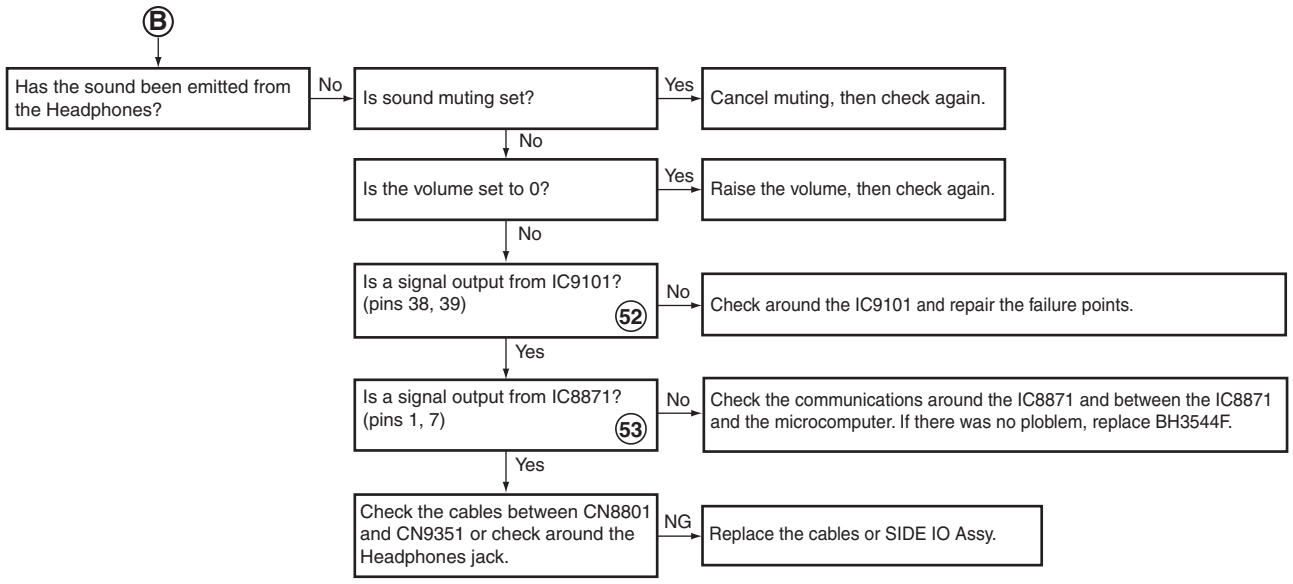
No video from USB input


=> USB_R
The image of the USB card doesn't come out.
Yes
Has the function is selected Home Media Gallery by Home menu?
No
Select the input of specification by the input switch.
Yes
Is the contents list are appear?
No
Has USB memory or digital camerra is connected to USB connecter?
NG
Insert USB device such as USB flash memory.
Yes
Has the signal come to IC6401?
No
Check around USB connecter or USB cable and check between pins 2, 3 of CN4110 and pins 302, 391 of IC6401.
NG
Replace USB cable.
Yes
Is the signal from IC6401 to IC8001?
No
Check between IC6401 and IC8001. If there is no problem then replace IC6401.
Yes
Has the symptom been settled when the MAIN Assy is replaced?
No
The panel is defective.
Yes
Replace the MAIN Assy.

5.2.7 AUDIO SYSTEM

Flowchart of Failure Analysis for The Audio System

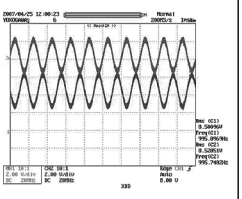

=> AU1
Has the sound been emitted from the speakers?
No
Is sound muting set?
Yes
Cancel muting, then check again.
Yes
No
Is the volume set to 0?
Yes
Raise the volume, then check again.
No
Is not headphone inserted?
No
Pull out headphone, then check again.
Yes
Sound of all functions does not output?
No
Go to Ⓐ.
Yes
Check the speakers and speaker cables. Is it no problem?
No
Replace the speakers or speaker cables.
Yes
Is a voltage (+16.5 V) supplied to IC9201?
No
Check the cables (CN8806) from the main power and peripheral circuit. Repair the failure points.
Yes
Is not a signal output from CN9251? (pins 2, 4, 5, 7) 42 43
No
Check the CN9251 and peripheral circuit. Repair the failure points.
Yes
Is not a PWM signal output from IC9201? (pins 34, 38, 44, 52) 44 45
No
Check between the LPF (L9255, L9256) and CN9251. Repair the failure points.
Yes
Is not a PWM signal output from IC9101? (pins 52, 53, 54, 55) 46 47
No
Check around the IC9101 and clock output of X9101. Repair the failure points.
Yes
Is a signal input to IC9101? (pins 24, 25) 48
No
Check between the input terminals and IC9101. Repair the failure points.
Yes
Has I2C communication signal arrived at IC9101?
No
Check the peripheral circuits and the communication with the microcomputer. If there was no ploblem replace the MAP5601M.
Has the sound been emitted from the Audio out terminal?
No
Is a 12 V output from +12V_Reg output of IC9181 normal?
Check the IC9181 and peripheral circuit. Repair the failure points.
Yes
Are signals input to IC9151? (pins 2, 3, 5, 6) 49 50
Check the peripheral circuits and the communication with the microcomputer. If there was no ploblem replace the MAP5601M.
Yes
Are signals output from IC9151? (pins 1, 7) 51
Check the IC9151 and peripheral circuit. Repair the failure points.
Yes
Ⓑ


B
Has the sound been emitted from the Headphones?
No
Is sound muting set?
Yes
Cancel muting, then check again.
No
Is the volume set to 0?
Yes
Raise the volume, then check again.
No
Is a signal output from IC9101? (pins 38, 39)
52
No
Check around the IC9101 and repair the failure points.
Yes
Is a signal output from IC8871? (pins 1, 7)
53
No
Check the communications around the IC8871 and between the IC8871 and the microcomputer. If there was no ploblem, replace BH3544F.
Yes
Check the cables between CN8801 and CN9351 or check around the Headphones jack.
NG
Replace the cables or SIDE IO Assy.

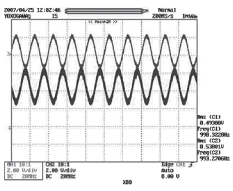
● Waveforms

Input signal: L/R 1 kHz, 0.5 Vrms (VOL 30)

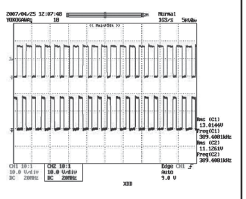
42 CN9251 - pins 2, 4
V: 2 V/div H: 1 mS/div



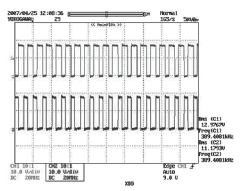
43 CN9251 - pins 5, 7
V: 2 V/div H: 1 mS/div



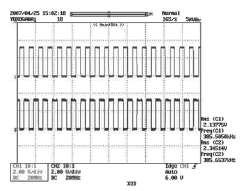
44 IC9201 - pins 34, 38
V: 10 V/div H: 5 µS/div



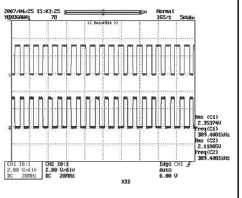
45 IC9201 - pins 44, 52
V: 10 V/div H: 5 µS/div



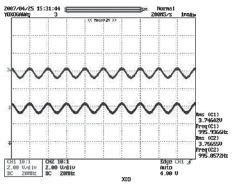
46 IC9101 - pins 52, 53
V: 2 V/div H: 5 µS/div



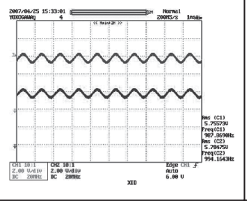
47 IC9101 - pins 54, 55
V: 2 V/div H: 5 µS/div



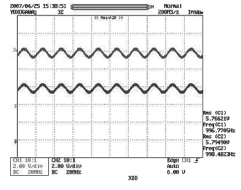
48 IC9101 - pins 24, 25
V: 2 V/div H: 1 mS/div



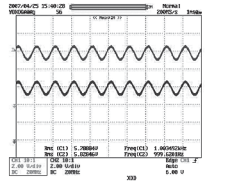
49 IC9151 - pins 2, 3
V: 2 V/div H: 1 mS/div



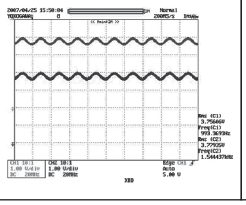
50 IC9151 - pins 5, 6
V: 2 V/div H: 1 mS/div



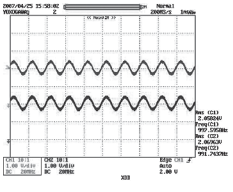
51 IC9151 - pin 1, etc.
V: 2 V/div H: 1 mS/div

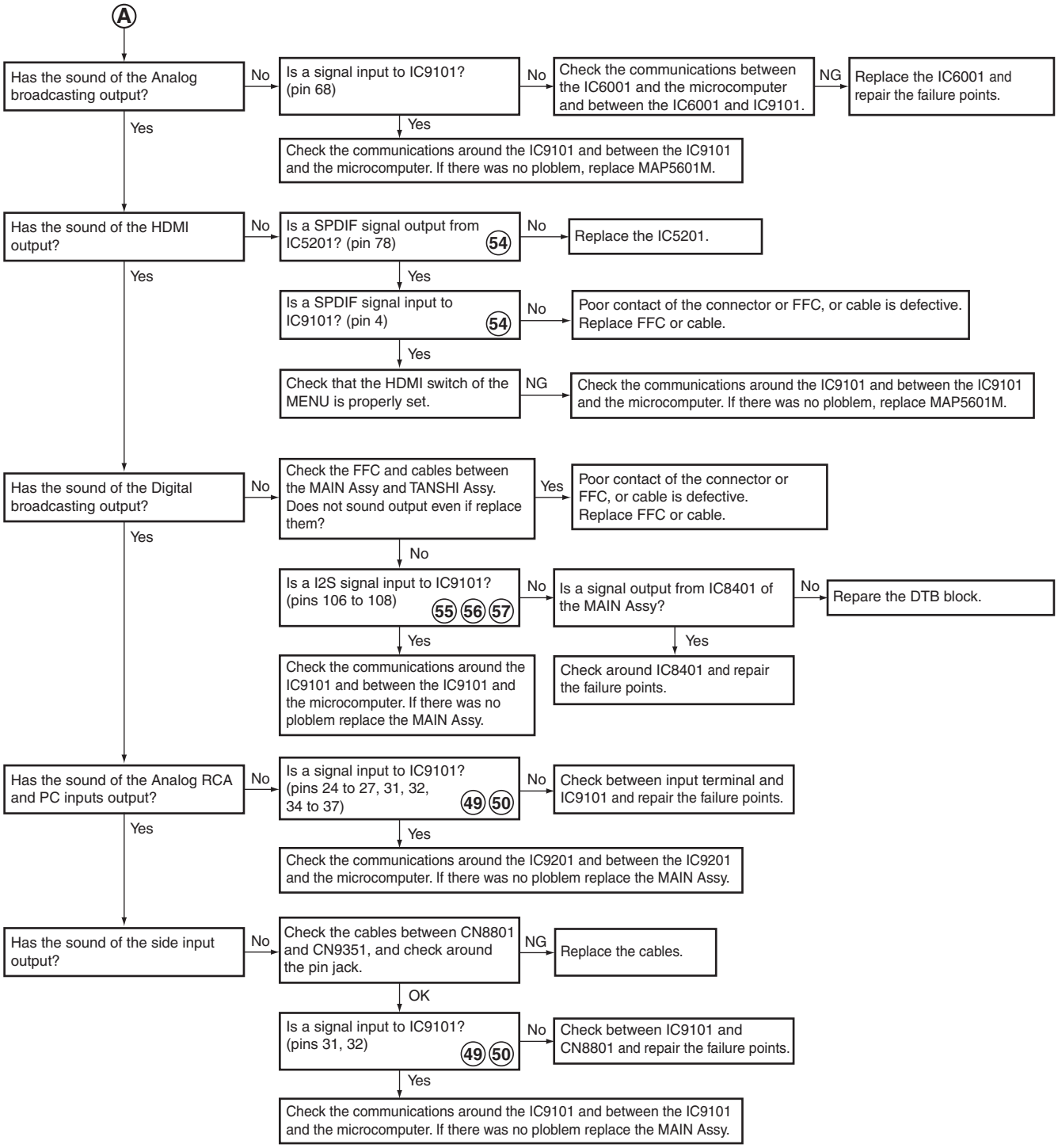


52 IC9101 - pins 38, 39
V: 1 V/div H: 1 mS/div



53 IC8871 - pins 1, 7
V: 1 V/div H: 1 mS/div

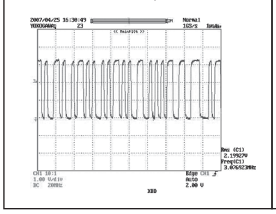



A
Has the sound of the Analog broadcasting output?
No
Is a signal input to IC9101? (pin 68)
No
Check the communications between the IC6001 and the microcomputer and between the IC6001 and IC9101.
NG
Replace the IC6001 and repair the failure points.
Yes
Yes
Check the communications around the IC9101 and between the IC9101 and the microcomputer. If there was no ploblem, replace MAP5601M.
Has the sound of the HDMI output?
No
Is a SPDIF signal output from IC5201? (pin 78) 54
No
Replace the IC5201.
Yes
Yes
Is a SPDIF signal input to IC9101? (pin 4) 54
No
Poor contact of the connector or FFC, or cable is defective. Replace FFC or cable.
Yes
Check that the HDMI switch of the MENU is properly set.
NG
Check the communications around the IC9101 and between the IC9101 and the microcomputer. If there was no ploblem, replace MAP5601M.
Has the sound of the Digital broadcasting output?
No
Check the FFC and cables between the MAIN Assy and TANSHI Assy. Does not sound output even if replace them?
Yes
Poor contact of the connector or FFC, or cable is defective. Replace FFC or cable.
Yes
No
Is a I2S signal input to IC9101? (pins 106 to 108) 55 56 57
No
Is a signal output from IC8401 of the MAIN Assy?
No
Repare the DTB block.
Yes
Yes
Check the communications around the IC9101 and between the IC9101 and the microcomputer. If there was no ploblem replace the MAIN Assy.
Check around IC8401 and repair the failure points.
Has the sound of the Analog RCA and PC inputs output?
No
Is a signal input to IC9101? (pins 24 to 27, 31, 32, 34 to 37) 49 50
No
Check between input terminal and IC9101 and repair the failure points.
Yes
Yes
Check the communications around the IC9201 and between the IC9201 and the microcomputer. If there was no ploblem replace the MAIN Assy.
Has the sound of the side input output?
No
Check the cables between CN8801 and CN9351, and check around the pin jack.
NG
Replace the cables.
OK
Is a signal input to IC9101? (pins 31, 32) 49 50
No
Check between IC9101 and CN8801 and repair the failure points.
Yes
Check the communications around the IC9101 and between the IC9101 and the microcomputer. If there was no ploblem replace the MAIN Assy.

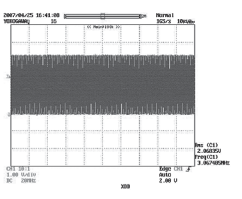
● Waveforms

Input signal: L/R 1 kHz, 0.5 Vrms (VOL 30)

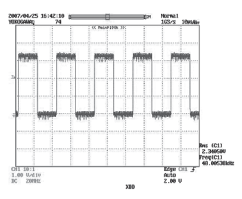
54 IC5201 - pin 78
V: 1 V/div H: 1 µS/div



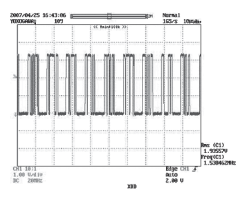
55 IC9101 - pin 106
V: 1 V/div H: 10 µS/div



56 IC9101 - pin 107
V: 1 V/div H: 10 µS/div



57 IC9101 - pin 108
V: 1 V/div H: 10 µS/div

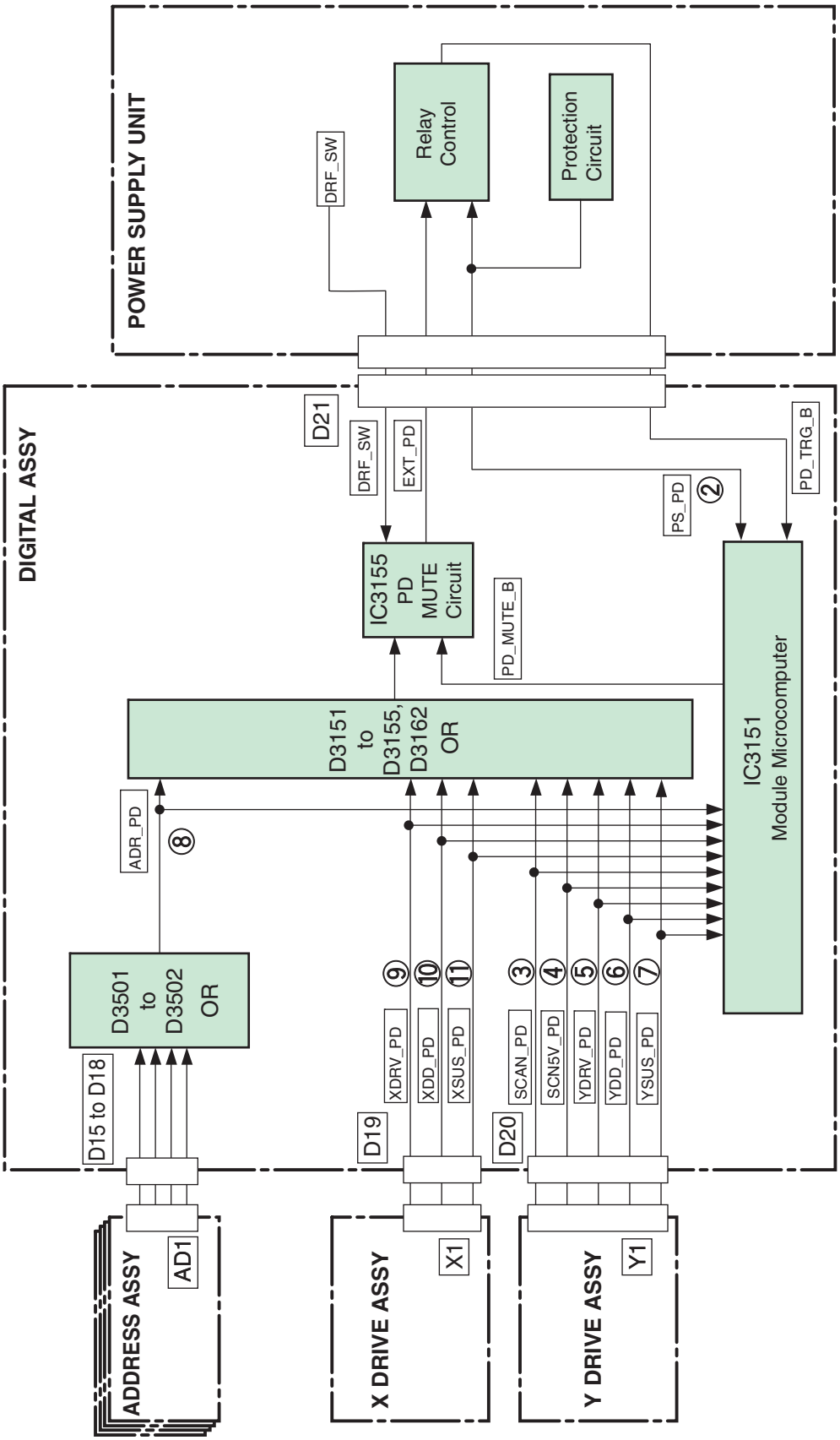


5.3 DIAGNOSIS OF PD (POWER-DOWN)

5.3.1 BLOCK DIAGRAM OF THE POWER-DOWN SIGNAL

■ **Block Diagram of the Power-Down Signal**

Note:
The figures ② to ⑪ indicate the number of times the LED flashes when power-down occurs in the corresponding route.



5.3.2 PD (POWER-DOWN) DIAGNOSIS OF FAILURE ANALYSIS

■ Prediction of failure symptoms when a PD (power-down) is generated

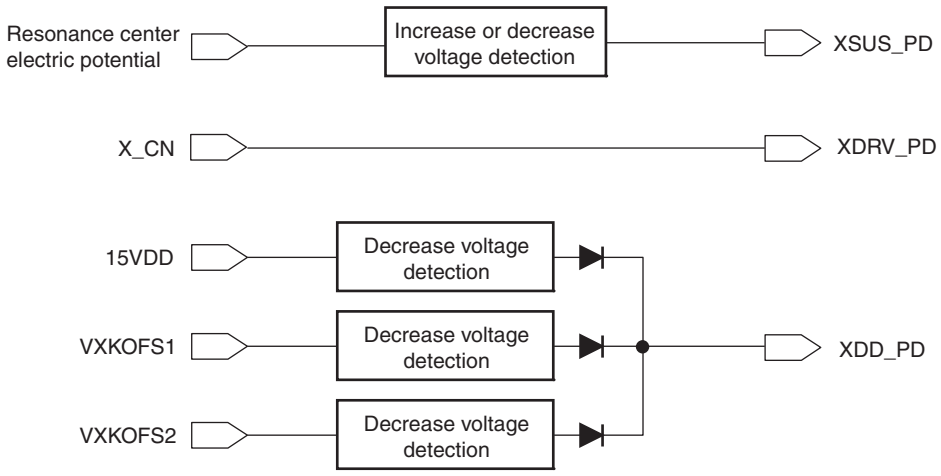
Red LED Flashing Count	Operating PD	Defective Assy	PD Outline	Checkpoint	Possible Defective Part	Remarks
2	POWER	POWER SUPPLY Unit	Failure in the POWER SUPPLY Unit			
		X DRIVE Assy	VSUS UVP	X SUS BLOCK	Q1219,Q1220,Q1221, Q1222,Q1223,Q1224,Q1201	VSUS-PSUS and SUSOUT-SUSGND are short-circuited.
		Y DRIVE Assy		Y SUS BLOCK	Q2217,Q2218,Q2219, Q2221,Q2222,Q2223	VSUS-SUSOUT and SUSOUT-SUSGND are short-circuited.
3	SCAN	SCAN Assy	VH UVP	SCAN IC	SCAN IC	
		X DRIVE Assy		X SUS BLOCK	Q1219,Q1220,Q1221, Q1222,Q1223,Q1224,Q1201	VSUS-PSUS and SUSOUT-SUSGND are short-circuited.
		Y DRIVE Assy		Y SUS BLOCK	Q2217,Q2218,Q2219, Q2221,Q2222,Q2223	VSUS-SUSOUT and SUSOUT-SUSGND are short-circuited.
				VH DC/DC converter	IC2601,D2604	
			Connectors disconnection detection	CN2001,CN2301		
		DIGITAL Assy		CN3506		
4	SCN-5V	SCAN Assy	IC5V UVP	SCAN IC		
		Y DRIVE Assy		IC5V DC/DC		
			Connectors disconnection detection	CN2501,CN2502	Q2554,D2558	
5	Y-DCDC	Y DRIVE Assy	Connectors disconnection detection	CN2001		
		DIGITAL Assy		CN3506		
6	Y-DCDC	Y DRIVE Assy	VNOFS UVP	Y MSK BLOCK	Q2320,Q2321,Q2322,Q2323, Q2324,Q2325,Q2330,Q2332, Q2334	LMSK is short-circuited.
				VNOFS DC/DC	D2606,Q2710,Q2711	
			Vprst UVP	YPRST Regulator	D2602,Q2604,R2610	
			15VDD UVP	15VDC/DC	Q2572	
			VKOFS1_2 UVP	Y MSK BLOCK	Q2320,Q2321,Q2322,Q2323, Q2324,Q2325,Q2330,Q2332, Q2334	LMSK is short-circuited.
				VKOFS1_2 Regulator	Q2705,Q2702	
			VKOFS3 UVP	Y MSK BLOCK	Q2320,Q2321,Q2322,Q2323, Q2324,Q2325,Q2330,Q2332, Q2334	LMSK is short-circuited.
				VKOFS3 Regulator	Q2706,Q2703	
			VKOFS4 UVP	Y MSK BLOCK	Q2320,Q2321,Q2322,Q2323, Q2324,Q2325,Q2330,Q2332, Q2334	LMSK is short-circuited.
				VKOFS4 Regulator	Q2707,Q2704	
7	Y-SUS	Y DRIVE Assy	Center electric potential detection PD	Y RESONANCE BLOCK	Q2106,Q2107,Q2108,Q2110,Q2112, D2104,D2105,D2108,D2109	
8	ADRS	ADDRESS Assy	Vadr LVP	ADDRESS RESONACE BLOCK	IC1551,IC1552,IC1553,IC1554	Vadr is short-circuited (TCP,etc.). Each TCP unit.
					Q1631,Q1641,Q1651,Q1661, (D1631,D1641,D1651,D1661,R1614, R1615,R1616,R1617)	Between ADR_B and Vadr is short-circuited. Each resonance block unit.
					C1611,(R1614,R1615,R1616,R1617, R1635,R1645,R1965,R1665,D1631, D1641,D1651,D1661,Q1610)	ADR_B capacitor is short-circuited.
			Connectors disconnection detection	CN1501,CN1502		
		DIGITAL Assy		CN3501 to CN3504		
		X DRIVE Assy		CN1202,CN1203		
		Y DRIVE Assy		CN2302,CN2303,CN2304		
9	XDRIVE	X DRIVE Assy	Connectors disconnection detection	CN1001		
		DIGITAL Assy		CN3505		
10	X-DCDC	X DRIVE Assy	Connectors disconnection detection	CN1201		
			15VDD UVP	X SUS BLOCK	L1201,R1217	
				15VDC/DC	Q1402	
			VXKOFS1 UVP	VXKOFS1 Regulator	Q1403,Q1404,IC1401	
				X OFFSET BLOCK	Q1301,Q1303	
			VXKOFS2 UVP	VXKOFS2 Regulator	Q1405,Q1406,IC1402	
				X OFFSET BLOCK	Q1302,Q1304	
11	X-SUS	X DRIVE Assy	Center electric potential detection PD	X RESONANCE BLOCK	Q1108,Q1109,Q1110,Q1112, D1106,D1107,D1110,D1111	

UVP: Under Voltage Protect , OVP: Over Voltage Protect

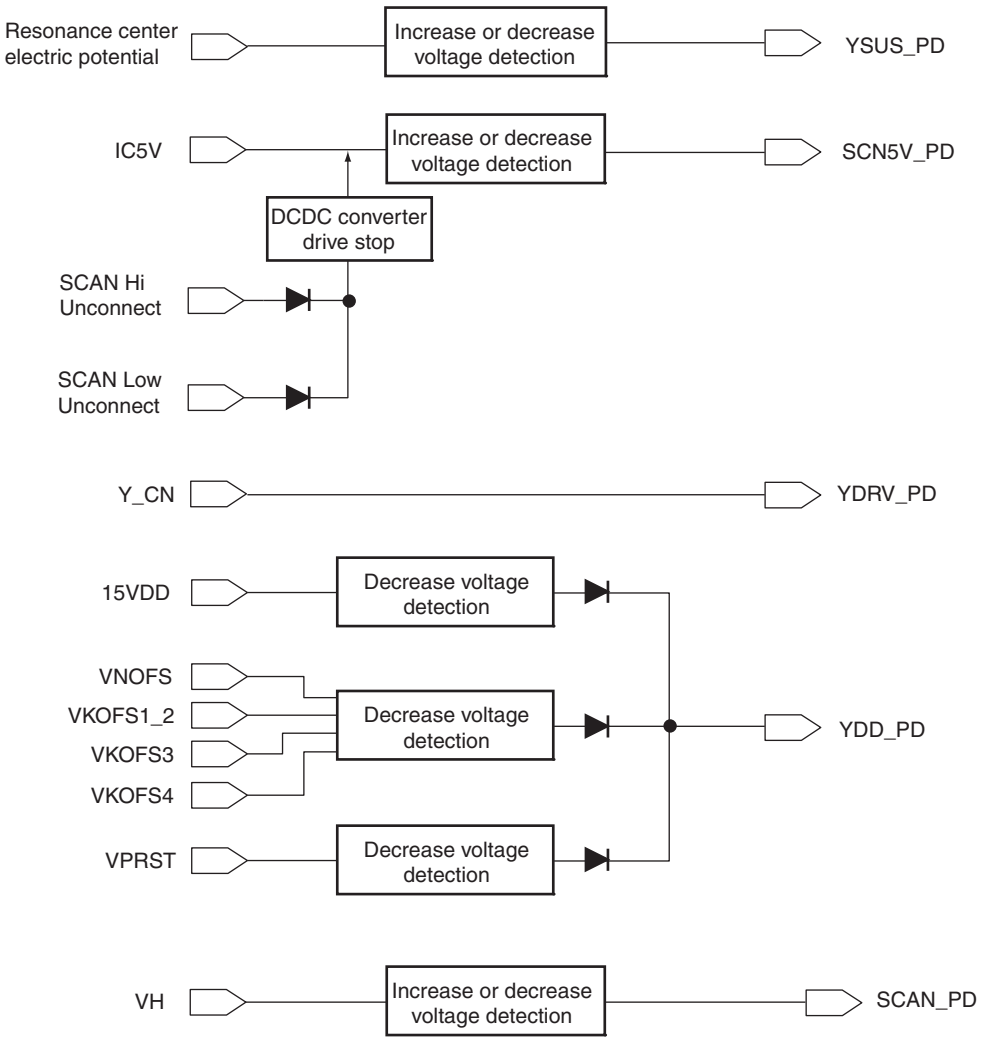
■ How to distinguish which connector is disconnected

Assy	Connector	To which Assy the Connector is Connected	LED Flashing Count	Screen Display
X DRIVE Assy	CN1001	DIGITAL Assy	5 (XDRIVE)	
	CN1201	POWER SUPPLY Unit (drive system power)	11 (X-SUS)	
	CN1202	POWER SUPPLY Unit (ADR system power)	8 (ADRS)	
	CN1203	ADDRESS Assy	8 (ADRS)	
Y DRIVE Assy	CN2001	DIGITAL Assy	3 (SCAN)	
	CN2301	POWER SUPPLY Unit (drive system power)	3 (SCAN)	
	CN2302	POWER SUPPLY Unit (ADR system power)	8 (ADR)	
	CN2303, CN2304	ADDRESS Assy	8 (ADR)	
	CN2501, CN2502	SCAN A, B Assy	4 (SCN-5V)	
SCAN A, B Assy	CN2801, CN2901	Y DRIVE Assy	4 (SCN-5V)	
ADDRESS Assy	CN1501	DIGITAL Assy	8 (ADRS)	
	CN1502	X DRIVE Assy, Y DRIVE Assy	8 (ADRS)	

X Drive PD system



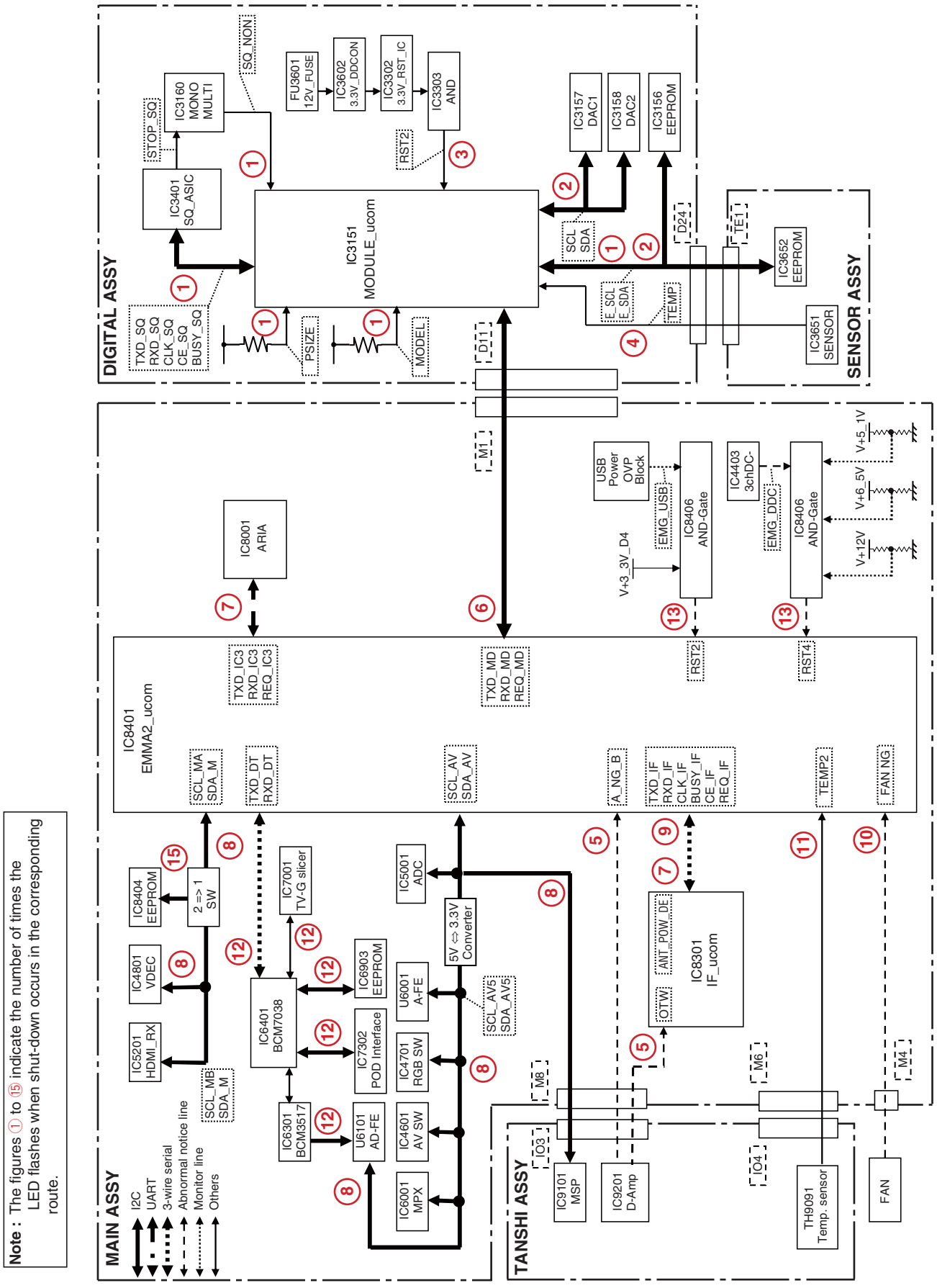
Y Drive PD system



5.4 DIAGNOSIS OF SD (SHUTDOWN)

5.4.1 BLOCK DIAGRAM OF THE SHUTDOWN SIGNAL

■ **Block Diagram of the Shutdown Signal**



Frequency of LED Flashing	Major Type	Detailed Type	Log Indication in Factory Mode		Checkpoint	Possible Defective Part	Remarks
			MAIN	SUB			
Blue 1	Abnormality in the Sequence LSI	Communication error	SQ-LSI	RTRY	CLK_SQ/TXD_SQ, etc.	IC3401, IC3151	SQ_IC communication not established. IC3401 may not have properly started up.
		Drive stop		SQNO	Check if the video sync signal is input to IC3401.	CN3001, IC3001,IC3401	A shutdown occurs if IC3401 has not properly started up (a communication failure between IC3401 and IC3306 [FLASH]).
		Busy		BUSY	BUSY_SQ	IC3401, IC3151	If BUSY_SQ remains high, a shutdown is generated.
		Incoherent version (hardware, software)		VER-HS	Check the model number of the DIGITAL Assy and the destination of the sequence LSI.	IC3306, IC3151	The written SQ_PROG is incoherent with data on the DIGITAL Assy.
		Incoherent version (memory, software)		VER-MS	Check the model number of the DIGITAL Assy and the destination of the sequence LSI.	IC3306, IC3151	A shutdown occurs if the SEQ-PROG that has been stored in backup memory does not coincide with the actual SEQ-PROG.
Blue 2	Failure in IIC communication with the module microcomputer	DIGITAL Assy EEPROM	MD-IIC	EEPROM	IIC communication line of IC3156	IC3156, IC3151	Check the pull-up resistor of the IIC control line and the power to the corresponding IC.
		SENSOR Assy EEPROM		BACKUP	IIC communication line of IC3652	IC3652, IC3151	Check the pull-up resistor of the IIC control line and the power to the corresponding IC.
		DAC1		DAC1	IIC communication line of IC3157	IC3157, IC3151	Check the pull-up resistor of the IIC control line and the power to the corresponding IC.
		DAC2		DAC2	IIC communication line of IC3158	IC3158, IC3151	Check the pull-up resistor of the IIC control line and the power to the corresponding IC.
Blue 3	Abnormality in RST2 power decrease	–	RST2	–	Is the output voltage of the DC-DC converter low?	IC3602(BD9302FP)	If RST2 does not become high after the unit is turned on, a shutdown will be generated in several seconds.
					The 12 V power is not output.	POWER SUPPLY Unit,FU3601	Check if V + 12 V is started. Also check if the FU3601 on the DIGITAL Assy has been melted.
Blue 4	Abnormality in panel temperature	–	TMP-NG	TMP-H	High temperature abnormality in the panel temperature sensor	SENSOR Assy (IC3651)	If TEMP1 that is read by the module microcomputer is 75°C or higher, a shutdown will be generated.
				TMP-L	Low temperature abnormality in the panel temperature sensor	SENSOR Assy (IC3651)	A shutdown occurs if the reading of TEMP1 detected by the module microcomputer is –20°C or less. Also check the connection with the SENSOR Assy.
Blue 5	Short-circuiting of the speakers / D-AMP temperature abnormality	–	AUDIO	–	Speaker terminals	CN9251	Check if any speaker cable is in contact with the chassis.
					AUDIO_AMP	IC9201, IC9101	Check if the AMP output is short-circuited.
					Periphery of the cable between IO3 and M8, and IO6 and P5	CN8803,CN4001,CN8806,P5	Check if cables are firmly connected.
Blue 6	Failure in communication with the module microcomputer	–	MODULE	–	Communication line between MAIN and MOD	IC3151, IC8401	Check the communication lines (TXD_MOD/RXD_MOD/REQ_MOD).
					Periphery of the cable between D11 and M1	CN3001, CN4101	Check if cables are firmly connected.
Blue 7	Failure in main microcomputer 3-wire serial communication	IF microcomputer	MA-3L	IF	Communication line between IF and MAIN	IC8301, IC8401	Check the communication lines (TXD_IF/RXD_IF/CLK_IF/BUSY_IF/CE_IF/REQ_IF).
		MULTI processor		MULTI	Communication line between MULTI and MAIN	IC8001, IC8401	Check the communication lines (TXD_IC3/RXD_IC3).
Blue 8	Failure in IIC communication with the main microcomputer	Tuner 1	MA-IIC	FE1	IIC communication line between Tuner (ANT-A) and MAIN	U6101,IC8401	Check the communication lines (SCL_TU/SDA_TU or SCL_AV5/SDA_AV5).
		MSP/MAP		MSPMAP	IIC communication line between MSP/MAP and MAIN	IC9101, IC8401	Check the communication lines (SCL_AV/SDA_AV).
		AV switch		AV-SW	IIC communication line between AV-SW and MAIN	IC4601, IC8401	Check the communication lines (SCL_AV5/SDA_AV5).
		RGB switch		RGB-SW	IIC communication line between RGB-SW and MAIN	IC4701, IC8401	Check the communication lines (SCL_AV5/SDA_AV5).
		VDEC		VDEC	IIC communication line between M-VDEC and MAIN	IC4801, IC8401	Check the communication lines (SCL_MB/SDA_MB).
		VDEC SDRAM		SDRAM	IIC communication line between VDEC and SDRAM	IC4801, IC4802	Check the communication lines (SDRAM). Defective SDRAM
		AD/PLL		ADC	IIC communication line between ADC and MAIN	IC5001, IC8401	Check the communication lines (SCL_AV/SDA_AV).
		HDMI		HDMI	IIC communication line between HDMI_RX and MAIN	IC5201, IC8401	Check the communication lines (SCL_MB/SDA_MB).
		Tuner 2		FE2	IIC communication line between Tuner (ANT-B) and MAIN	U6001, IC8401	Check the communication lines (SCL_AV5/SDA_AV5).
		US-MSP		US-MSP	IIC communication line between US_MSP and MAIN	IC6001, IC8401	Check the communication lines (SCL_AV5/SDA_AV5).
Blue 9	Failure in communication with the main microcomputer	–	MAIN	–	Communication line between IF and MAIN	IC8301, IC8401	Check the communication lines (TXD_IF/RXD_IF/CLK_IF/BUSY_IF/CE_IF/REQ_IF).
Blue 10	FAN NG	FAN1	FAN	FAN1	Dirt attached to the fan motor	–	Check the fan.
					Periphery of the FAN CONNECT	AWW1290, AWW1329	FAN NG
					Periphery of the cable between FA1 and M5, FAN and M4, and FA2 and FA5	CN9551 to CN9555,CN4103,CN4113	Check if cables are firmly connected.
					Periphery of the fan control regulator	IC4310, IC4303	–

Frequency of LED Flashing	Major Type	Detailed Type	Log Indication in Factory Mode		Checkpoint	Possible Defective Part	Remarks
			MAIN	SUB			
Blue 11	High temperature of the unit	–	TEMP2	–	Temperature sensor or its periphery	–	TEMP2 A shutdown occurs because of high temperature.
					Periphery of the temperature sensor	TH9091	TEMP2
					Periphery of the cable between IO4 and M6	CN8804, CN4004	Check if cables are firmly connected.
Blue 12	Digital Tuner	DTV startup error	DTUNER	PS/RST	Startup of BCM7038	IC6401	Check the startup of the BCM7038 and the communication line with MAIN.
		DTV communication error		RETRY	Communication line between BCM7038 and MAIN	IC6401	Check the startup of the BCM7038 and the communication line with MAIN.
		BCM7038 is abnormal		DE-BCM	Periphery of BCM7038	IC6401	
		Tuner1 or Tuner2		DE-FE	Front-end block (ANT-A)	IC6401, U6101	Check the BCM7038 and its periphery device
		Card I/F IC		DE-CAS		IC7302, IC6401, AWV2496	Check the BCM7038 and its periphery device
		VBI Slicer		DE-VBI	Periphery of VBI slicer	IC7001	Check the BCM7038 and its periphery device
		EEPROM		DE-EP1		IC6903, IC6401	Check the BCM7038 and its periphery device
		TV Guide		TV-G	TV-GUIDE function (Data from broadcast wave)	–	Check the BCM7038 and its periphery device (No LED will blink if a shutdown is generated during power standby.)
		Home Gallery		HOME-G	HNM circuit	IC6401, AWV2497	Check the BCM7038 and its periphery device
		Middleware		DTVMID	DTV middleware	–	
		Application		DTVAPP	DTV application	–	
Blue 13	Failure in the power supply	DC-DC Converter power decrease	RST-MA	M-DCDC	DC-DC converter or its periphery, RST2	IC4403, Q4404	Check if V + 3.3 V_D4 is started.
					EMG_USB	IC4309, Q4304	Check if the voltage at a waveform check point is 5 V.
		POWER SUPPLY		RELAY	The 12 V power is not output, RST4	POWER SUPPLY Unit	Check if V + 12 V is started.
					The 6.5 V power is not output	POWER SUPPLY Unit	Check if V + 6.5 V is started.
					The 5.1 V power is not output	POWER SUPPLY Unit	Check if V + 5.1 V is started.
					EMG_DDC	DCDC converter	Check if the DCDC converter is overloaded.
					Periphery of the cable between P8 and M3	CN4105	Check if cables are firmly connected.
Blue 14	Home Media Gallery	HMG startup error	HMG	START	Periphery of connector	CN4111	Check if cables are firmly connected.
					HNM power supply	IC4309, Q4304	Check if the voltage at a waveform check point is 5 V.
Blue 15	Main EEPROM	Main EEPROM communication error	MA-EEP	–	IIC communication line between EEPROM and MAIN	IC8404, IC8401	Check the communication lines (SCL_EP/SDA_EP).

5.5 NON-FAILURE INFORMATION
5.5.1 INFORMATION ON SYMPTOMS THAT DO NOT CONSTITUTE FAILURE

■ Information on symptoms that do not constitute failure

Symptom	Cause, item to check, information
HDMI: Symptoms concerning the input format and settings	
The picture color for an INPUT 4 to 7 signal is not correct.	The color setting for INPUT 4 to 7 is not compatible with that of the output equipment. Check whether the color setting is YPbPr or RGB.
The video signal to INPUT 4 to 7 is not displayed, and a message is displayed.	A unsupported video signal is input.
The audio signal input to the INPUT 4 to 5 is not output. No HDMI signal is input.	The audio setting for INPUT 4 to 5 is "AUTO," and a video signal is not input. If the audio setting is "AUTO," to output an analog audio signal, the HDMI signal must be input. (If a DVI device is to be connected, use a DVI-HDMI conversion cable.) If the HDMI video signal is not input, the analog audio signal is not output. When the DVI equipment is connected, the analog signals are selected with the setting "AUTO."
No sound of signals to INPUT 4 to 7 is output.	The setting on the side of the HDMI output equipment is wrong. Example: Dolby Digital
The 1080p input signal is not displayed properly or at all, although the 1080i input signal is displayed properly.	Check that the connected cable supports HDMI Category 2. (As the clock frequency for the 1080p signal is triple that for the 1080i signal, signal degradation caused by a cable must not be neglected. A cable supporting HDMI Category 2 can be used for the 1080p signal. Although some conventional cables can support the 1080p signal, some others cannot.)
DIGITAL OUT	
Playback of the signal from the DIGITAL audio output connector is possible, but recording is not possible.	The video signal output from the DIGITAL connector is copy-protected.
Miscellaneous	
The no-signal off function is not activated.	The no-signal off and no-operation off functions are effective only if video (composite, S video, component, HDMI [excluding PC]) input or TV input is selected.
The no-operation off function is not activated.	
Power management does not function.	Power Management is effective only while an analog PC signal is being input. It is not effective with HDMI-PC signal input.
The AUTO SETUP function is not activated.	The Auto Setup function is effective only while an analog PC signal is being input. This function does not work if an analog PC signal is not input, even if the INPUT PC is selected.
Control via the SR connector is not possible.	Wrong connection of the cable to the PC INPUT (AUDIO) connector is suspected.
The audio signal from the PC is not output.	Wrong connection of the cable to the SR connector is suspected.
The picture-quality setting (AV Selection) is not stored.	The picture-quality setting is stored for each input. As the setting is changed when another input is selected, the user may have a false idea that the setting is not stored.
The picture size changes arbitrary.	The Auto Size setting is set to ON.
The display position of the screen changes slightly while the screen is on.	The orbiter function for minimizing the effects of phosphor burn is activated. Although the setting for this function can be changed on the Home menu, retaining the factory setting is strongly recommended.
The video signal to the S video connector is not displayed.	The component video cable is connected to the same input function as for the S video (even if no signal is input to the component video connector, merely having something plugged in to the connector will result in judgment that a signal is being fed in and the component video connector takes priority). (Priority of connectors: component video > S video > composite video)
The video signal to the composite video connector is not displayed.	The S Video or component video cable is connected to the same input function as for the composite video. (Priority of connectors: component video > S video > composite video)

SUPPLEMENT: On the video setting for HDMI

There are three types of HDMI output formats: color difference 4:4:4, color difference 4:2:2, and RGB4:4:4.
(The proportions, such as 4:4:4 and 4:2:2, represent those of the amount of data for video signal components. For example, as for color difference 4:4:4, the proportion of the amount of data as for Y, Cb, and Cr is 4:4:4.)

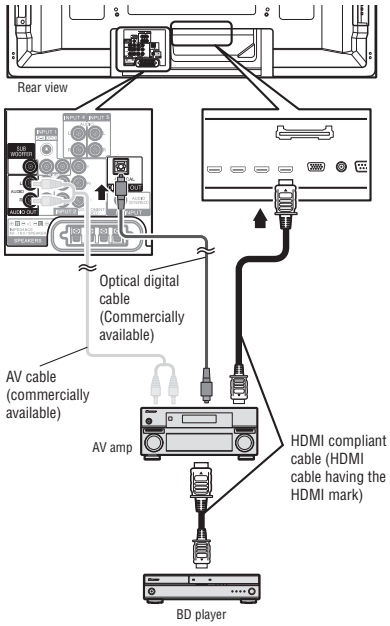
It is required to make the settings of the PDP according to the settings of the output equipment. For usual operation, however, set them to AUTO. If the color is inappropriate, make the settings manually.
In the HDMI system, video signals are coded at 24 bits per pixel and transmitted as a series of 24-bit pixels. In a case of color difference 4:4:4, Y, Cb, and Cr use 8 bits each. In a case of color difference 4:2:2, Y, Cb, and Cr use 12 bits each, but Cb and Cr are transmitted at a half sampling rate of Y. This unit is capable of processing the upper 10 bits out of 12 bits of video data. Recent high-end DVD players, such as Pioneer DV-79AVi, are capable of outputting 10-bit color-difference signals. In general, it is said that picture quality for color difference 4:2:2 format is assumed to be higher, because human eyes are more sensitive to luminance than to colors. In the case of RGB4:4:4, R, G, and B use 8 bits each.

5.5.1.1 CONFIRMATION ON THE HDMI CONTROL FUNCTION

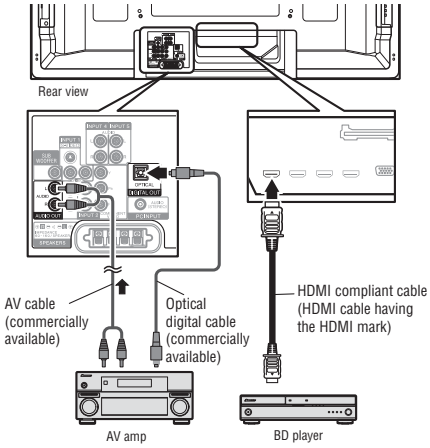
When you use the HDMI Control (HDMI-CEC) function, if the unit does not function properly, such as not being able to control or recognize connected equipment, check the following:

- **Confirmation of the manufacturer of the connected equipment**
  Check if the connected equipment was manufactured by Pioneer and if it supports the HDMI Control function.
  If its manufacturer is not Pioneer, proper operations are not guaranteed.

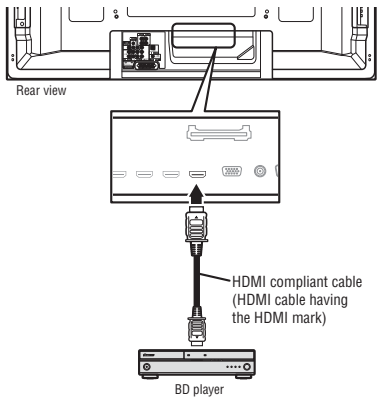
- **Confirmation of connections**
  Check if the unit is connected properly, as shown in the figures below:
  (For details, refer to "Making the HDMI Control connections" in the Operating instructions.)


Rear view
Optical digital cable (Commercially available)
AV cable (commercially available)
AV amp
HDMI compliant cable (HDMI cable having the HDMI mark)
BD player

Example 1: When an AV amplifier that supports HDMI Control is connected


Rear view
AV cable (commercially available)
Optical digital cable (commercially available)
HDMI compliant cable (HDMI cable having the HDMI mark)
AV amp
BD player

Example 2: When an AV amplifier that does not support HDMI Control is connected



Example 3: When an AV amplifier is not connected

Check that the following conditions are met:

- The connected equipment must support the HDMI Control function.
- The equipment must be connected to the INPUT connector that has been selected in "Input Setting" on the HDMI Control Setting menu.
- The connections must be made properly, as shown in the above figures (in a case where an AV device, such as an AV amplifier, and a DVD recorder/BD player are connected, in a case where only a DVD recorder/BD player is connected, and in a case where an AV device, such as an AV amplifier, which does not support HDMI-CEC, is connected).
- When an AV device that supports the HDMI Control function is connected, it must be connected between the PDP and a DVD recorder/BD player.
- The HDMI Control function must be activated on the connected equipment (DVD recorder, BD player, AV device [AV amplifier, etc.]). (Refer to the Operating instructions of the connected equipment.)

A

• Confirmation of the number of connected devices

Check that the number of connected devices does not exceed the maximum number for guaranteed operations.

Equipment	Maximun Number
DVD recorder	2
BD player	2
AV System	1

B

• Confirmation of settings

Check that the settings for the HDMI Control function are properly made. (For details, refer to "Setting the HDMI Control" in the Operating instructions.)

Check that the following conditions are met:

- "Input Setting" on the HDMI Control Setting menu must be set to the same input as that to which the equipment that supports the HDMI Control function is connected.
- When Power Off Control, Power-On Ready, or Hold Sound Status are to be used, their settings must be On.

C

• Confirmation of operations

Check that the HDMI Control function works properly.

(1) Connect a device that supports the HDMI Control function.

(2) Perform the procedures that are required after changing connections, which are described in "Making the HDMI Control connections" in the Operating instructions.

1 Turn on the plasma television and all the connected devices.

D

2 Confirm that the setting in “Input Setting” for “HDMI Control Setting” is properly entered according to the connected devices. Also confirm the HDMI Control related settings in the connected devices.

3 Switch to the HDMI input terminals to which the devices are connected to check if audio and video images are properly output and displayed.

4 Try turning off the plasma television, then turn the power back on to the plasma television.

(3) Perform "Power On Test" or "Power Off Test" on the HDMI Control Setting menu. (For details, refer to "Power On/Off Test" in the Operating instructions.)

E

If the following occurs even if the operation check is performed properly, a failure, such as breakage of the HDMI cable, problems on the side of the connected device, and problems with the MAIN Assy, may be suspected:

- "Power On Test" or "Power Off Test" cannot be selected (the items are grayed)
- The connected device cannot be turned on/off.

In some cases, an operation check using another HDMI input connector may be required in order to narrow down the cause.

F

5.5.2 FUNCTION OF DECREASING THE BRIGHTNESS LEVEL

■ High-temperature protection function 1

If the panel temperature (TEMP1) reaches 70 °C, the limit for the maximum count of plasma discharge will be gradually decreased to lower the temperature of the panel.

- This function is activated based on the TEMP1 temperature.
- The limit for the maximum count of plasma discharge will be decreased 8 per 5 seconds.
- The lowest limit for the maximum count of plasma discharge is about 700.
- The maximum count of plasma discharge will begin to increase gradually if the panel temperature falls to the specified temperature.

■ High-temperature protection function 2

If the panel temperature (TEMP1) reaches 65 °C, the plasma-discharge count that is determined based on the input APL will be decreased. In actual operation, the ABL adjustment value will be offset.

- This function is activated based on the TEMP1 temperature.
- The ABL adjustment value will be decreased by one step per 30 seconds.
- The ABL adjustment value will begin to increase gradually if the panel temperature falls to the specified temperature.

■ Panel protection function 1 (protection against still picture)

If a still picture is displayed for 3 minutes or more, the limit for the maximum count of plasma discharge will be gradually decreased to minimize the effects of phosphor burn.

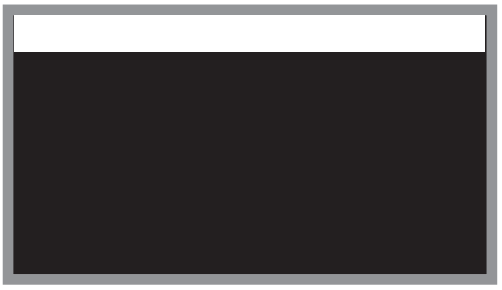
- This function is activated after detection if the displayed picture is still (the picture will be considered to be still if only the mouse cursor is moved).
- The limit for the maximum count of plasma discharge will be decreased 8 per 5 seconds.
- The lowest limit for the maximum count of plasma discharge is about 700 (it takes about 15 minutes to reach the lowest limit, although the required time varies depending on the displayed picture).
- The maximum count of plasma discharge will begin to increase gradually if the displayed picture is changed to animated picture.

Note: How to decrease the brightness level in this function is the same as in high-temperature protection function 1.

■ Panel protection function 2 (SCAN IC protection)

If a particular load is applied to the SCAN IC, the limit for the maximum count of plasma discharge will be gradually decreased.

Note: How to decrease the brightness level in this function is the same as in high-temperature protection function 1.

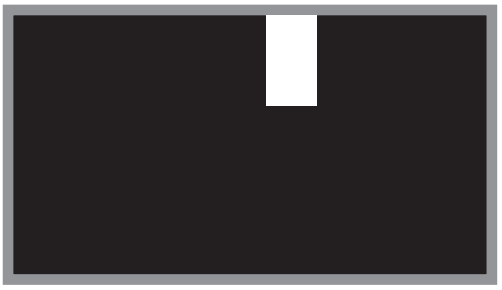


Detection example: SCAN IC protection

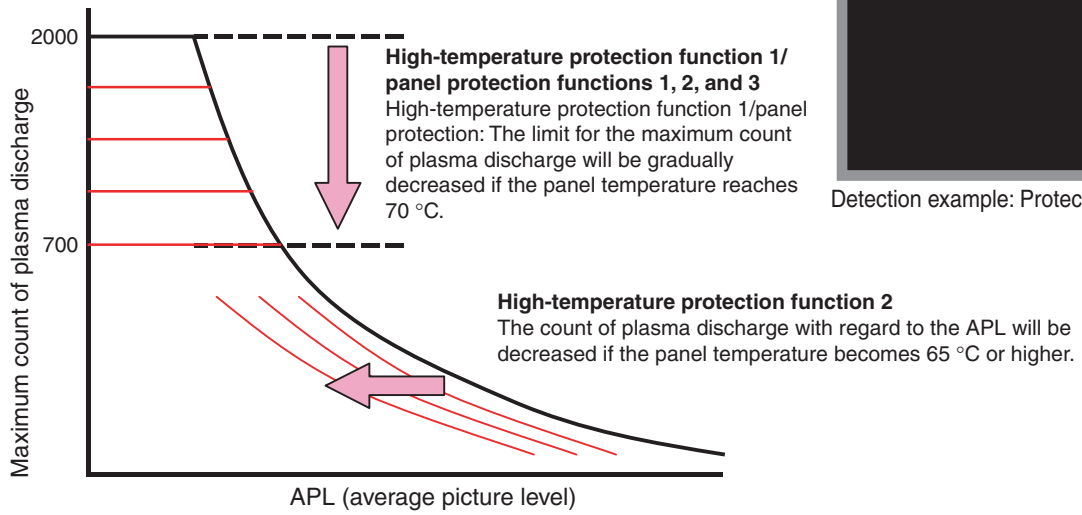
■ Panel protection function 3 (protection against panel cracking)

A bright window, as shown in the figure on the right, on the screen increases the heat of the panel. If such a pattern is recognized on the screen, the limit for the maximum count of plasma discharge will be gradually decreased.

Note: How to decrease the brightness level in this function is the same as in high-temperature protection function 1.



Detection example: Protection against panel cracking


2000
700
Maximum count of plasma discharge
APL (average picture level)
High-temperature protection function 1/ panel protection functions 1, 2, and 3
High-temperature protection function 1/panel protection: The limit for the maximum count of plasma discharge will be gradually decreased if the panel temperature reaches 70 °C.
High-temperature protection function 2
The count of plasma discharge with regard to the APL will be decreased if the panel temperature becomes 65 °C or higher.

5.6 OUTLINE OF THE OPERATION

5.6.1 PANEL DRIVE-POWER ON / OFF FUNCTION

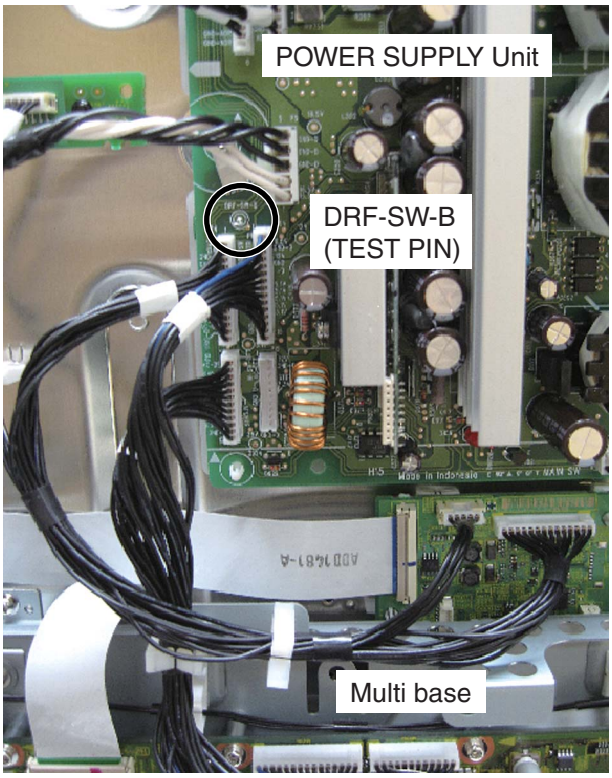
Function:
It is an operational mode where the digital signal processing performs circuit operation but the power is not supplied to the panel driving system (Vsus, VAddress) in order to avoid a power down (PD).

Application:
1. When it is necessary to check whether the signal output is correctly reaching the drive system in a repairing activity etc.
2. In the case of a PD, to determine whether the problem is with the panel drive-power supply or with the other system power supply.

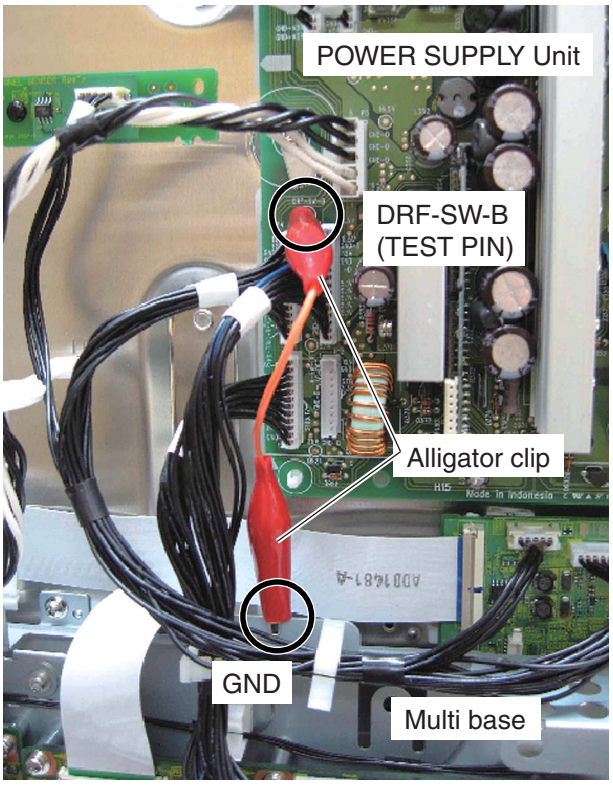
Method:
1. Short-circuit between the specified location of the POWER SUPPLY Unit and GND (Multi base section recommended), using a jumper with alligator clips (refer to the photos below).
2. Execute [DRV S00] by RS-232C command. ([DRV S01] for release)

Supplemental explanation:
- When the panel drive-power is in OFF state, there will be no PD, except PS_PD, as the PD signal has been muted.
- If the clip is removed in the OFF state of the panel drive-power, PD will take place at the instance of clip removal. Therefore, be sure to remove the clip after turning the power OFF.
- Under RS-232C command control, [DRV S01] (release) is possible during power ON. However, there is a possibility of damaging the set. Therefore, make this operation only after turning the power OFF.
- Command [DRV S00/S01] is effective even during standby.
- When the main power switch is set to OFF, no command is accepted.
- When the AC power cord is unplugged, the panel drive-power OFF state established by the [DRV S00] command is canceled. (The panel drive-power OFF state remains in effect even if the main power switch is set to OFF after that command is sent.)

When the panel drive-power is ON



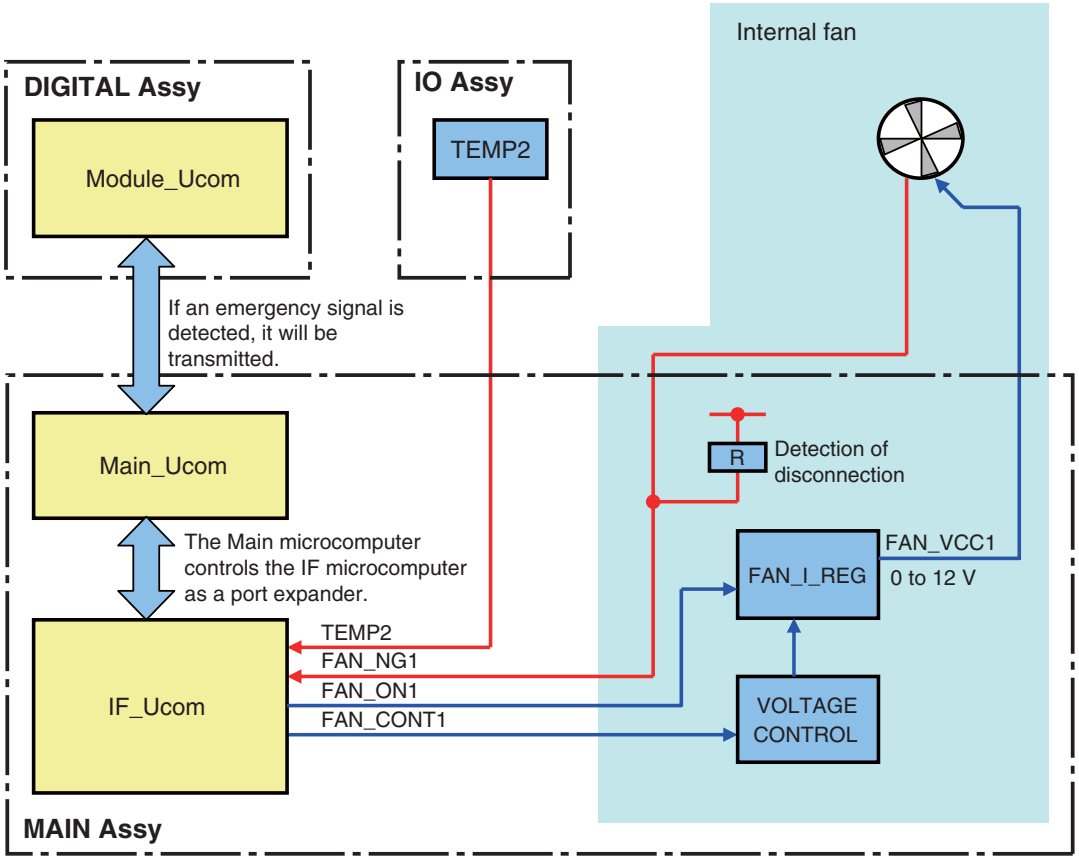
When the panel drive-power is OFF



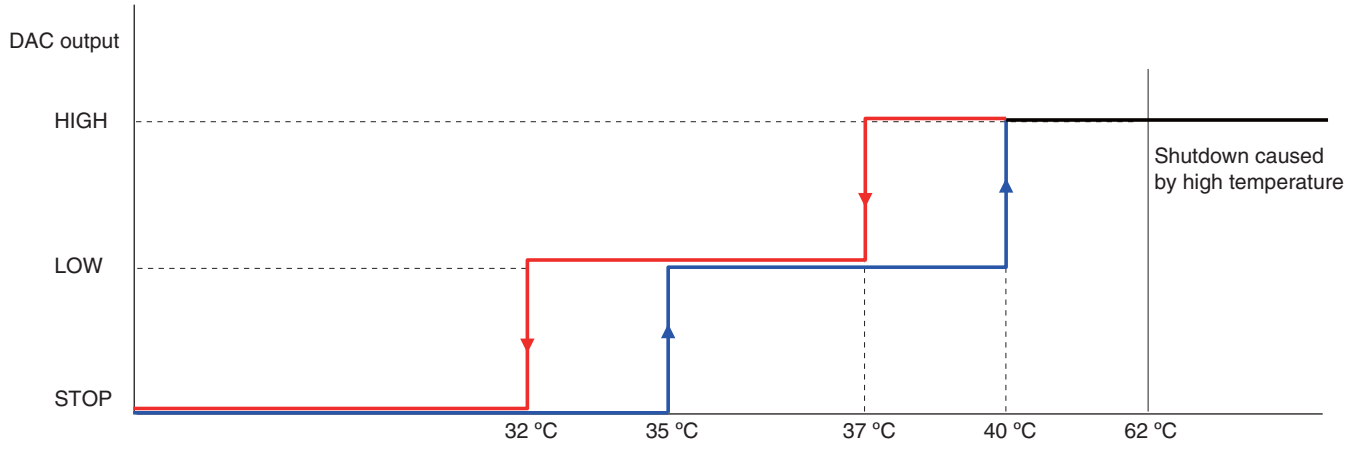
5.6.2 SPECIFICATION OF THE FAN CONTROL

■ Block diagram

The internal fan cools down the MTB and Power blocks.



■ Operation specifications



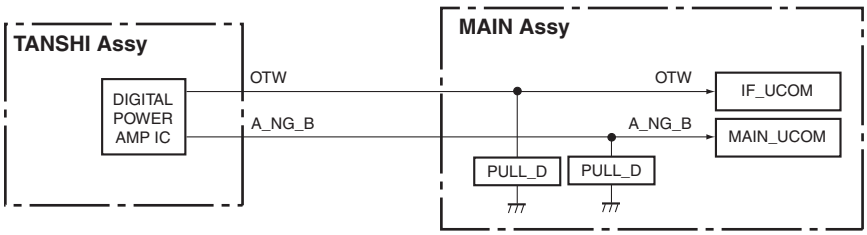
Notes:

- The operating temperature of the fan is higher than the ambient temperature, because the sensor temperature is read by the microcomputer.
- If the critical values for signals are displayed in the address circuit, the fan may be activated or be rotated at higher speed in response to values lower than the set temperature values shown above.

5.6.3 PROCESSING IN ABNORMALITY

Protection of the Power Amplifier

● Circuit configuration



● Specifications for port monitoring

Port Name	SD/PD Indication	Active	Monitoring conditions	Operation
A_NG_B	AUDIO	Shutdown occurs when the signal is "L." 30 mS × 3 times	RST4 = "H" (always) (Monitoring starts 2 sec after the above conditions are established.)	The main CPU operations described below will be performed when either "A_NG_B = L" or "OTW = L" is detected (established) under the monitoring conditions.
OTW	AUDIO	Shutdown occurs when the signal is "L." 130 mS × 3 times		

● Operation specifications of the main CPU

(1) When a shutdown decision is made by the main CPU
- After a warning indication is displayed for 5 sec, a shutdown is generated (the blue LED flashes 5 times).
- A warning indication is displayed for all input-signal types.
- Example of a warning indication: "The speaker terminals are short-circuited. After reconnection, turn the unit on again." (For 50-inch models) (For 42-inch models, an indication declaring a forced power-off is displayed.)

(2) Display conditions
When the panel is on: A warning indication is displayed immediately.
When the panel is off: A warning indication is not displayed immediately but is displayed when the panel is turned on.

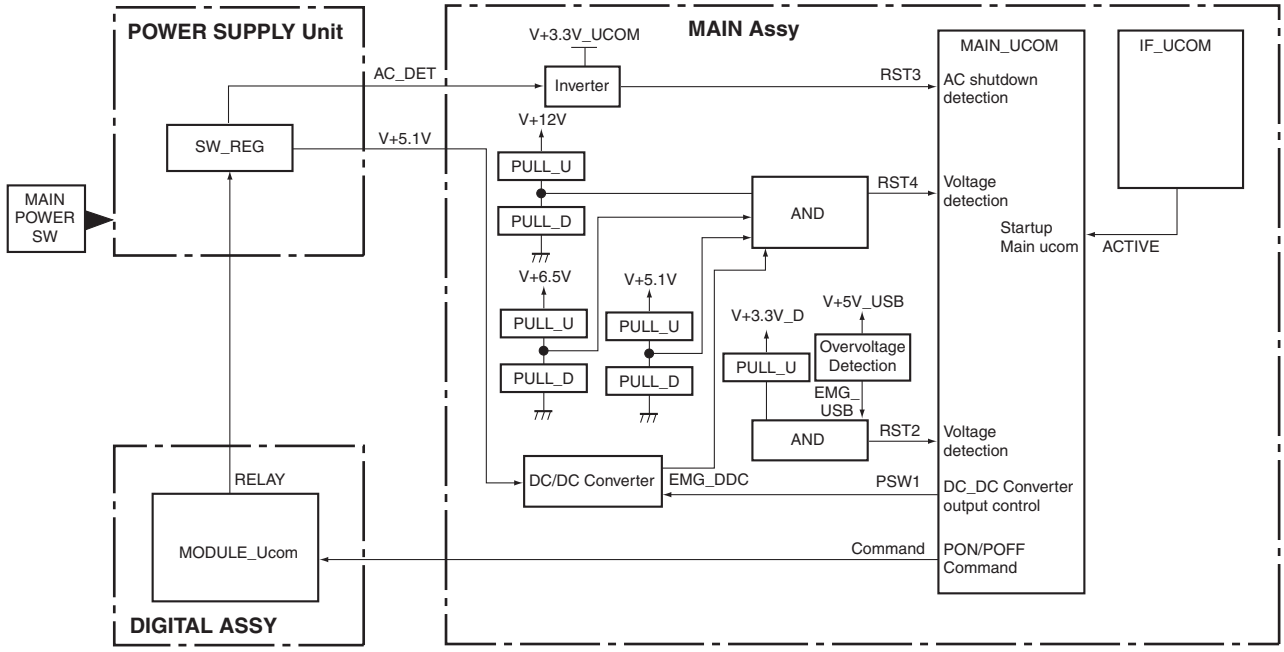
Note: A warning indication is displayed each time the panel is turned on if the conditions for a shutdown persist.

● Conditions for resetting the circuits

The circuits will be reset upon Standby ON/OFF.

Power supply and DC-DC converter

● Circuit configuration

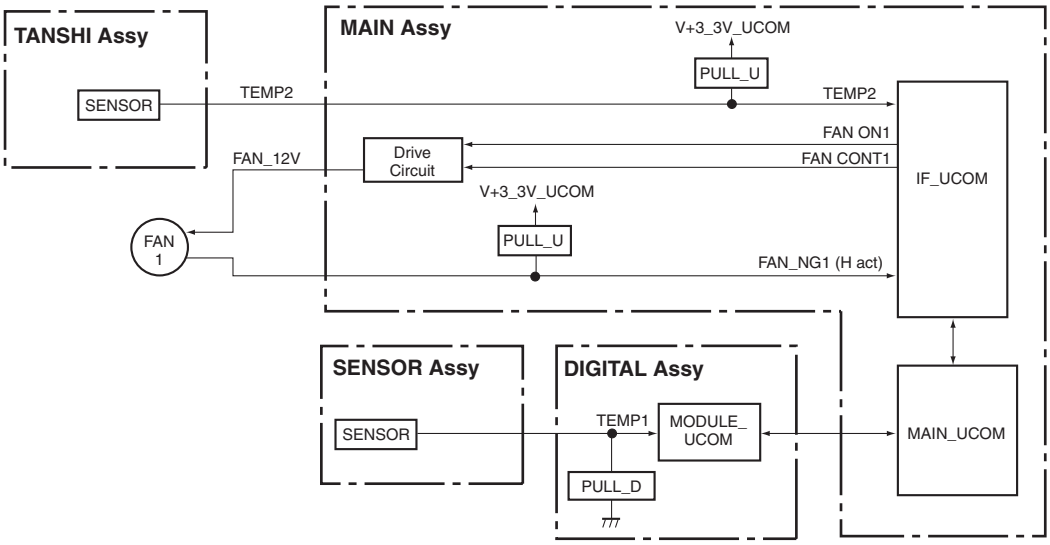


● Specifications for port monitoring

Port Name	SD/PD Indication	Active	Monitoring conditions	Operation
RST2	ASIC power (M-DCDC)	Shutdown occurs when the signal is "L." for 5 sec after PSW1 is ON. or for 2 sec while the unit is ON.	• Panel ON (RST4 = H and PSW1 = L) • While awaiting restoration of RST2 (RST2 = L)	The SD timer starts when "RST2 = L" is detected under monitoring conditions. If "RST3 = H," "M_SW_DET_B = H," or "RST4 = L" is detected, or if a power-down or shutdown in the module microcomputer system is not generated, the unit waits for 30 mS. Then, if the SD timer continues to count for 2 sec or more, a shutdown is determined, and a shutdown process starts. A specific LED flash pattern (blue LED, 13 times) starts. The next PON operation is valid, and the flag is cleared upon the next power-on. If RST2 is H, a restoration process starts according to the latest power-on/-off status.
RST3	AC power	AC_OFF when the signal is "H."	• Active STB (including SD/PD statuses) • Functional STB • Panel ON • (Areas other than North America) While the main power switch is set to OFF (M_SW_DET_B = H) • (North America) While the main power switch is set to OFF (M_SW_DET_B = H) • While awaiting restoration of AC power (RST3 = H) • While awaiting restoration of RST2 (RST2 = L) • While awaiting restoration of RST4 (RST4 = L)	If "RST3 = H" (AC_OFF) is detected under the monitoring conditions, a power-off process starts. Monitoring of the RST3 port is continued, while monitoring of other ports is interrupted. Communication is controlled only by the IF microcomputer. The port outputs are set as specified. If the signal at the RST3 port continues to be H after 30 mS of waiting, monitoring is continued. If RST3 is L, a restoration process starts according to the latest power-on/-off status.
RST4	MAIN power (RELAY)	Shutdown occurs if the signal is "L." for 5 sec after RELAY is ON. or for 2 sec while the unit is ON or in Functional STB.	• Functional STB • Panel ON • (Areas other than North America) While the main power switch is set to OFF (M_SW_DET_B = H) • While awaiting restoration of RST2 (RST2 = L) • While awaiting restoration of RST4 (RST4 = L)	The SD timer starts when "RST4 = L" (power-off of devices in the functional STB system) is detected under monitoring conditions. The RST4 initialization process starts, and input monitoring, communication setting, and output-terminal setting are performed. The RST4-SD timer starts. If either "RST3 = H" or "M_SW_DET_B = H" is detected, or if a power-down or shutdown in the module microcomputer system is not generated, the unit waits for 30 mS. Then, if the SD timer continues to count for 2 sec or more, a shutdown is determined, and a shutdown process starts. A specific LED flash pattern (blue LED, 13 times) starts. The next PON operation is valid, and the flag is cleared upon the next power-on. If RST4 is H, a restoration process starts according to the latest power-on/-off status.

Fan and temperature sensor

● Circuit configuration



● Specifications for port monitoring

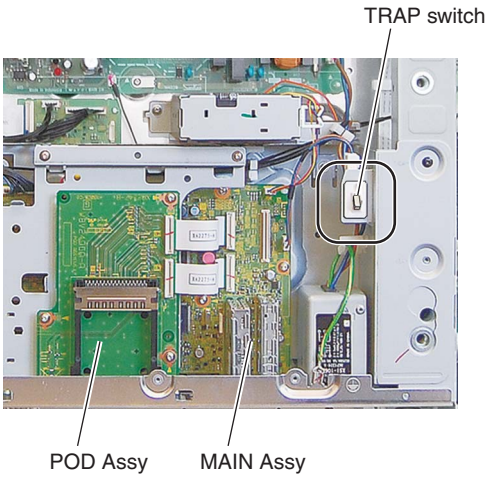
Port Name	SD/PD Indication	Active	Monitoring conditions	Operation
FAN_NG1	FAN1	Shutdown occurs when the signal is "H." 1 S * 3 times	RST4 = H and FAN_ON1 = H (Monitoring starts 3 sec after the above conditions are established.)	If FAN_NG1 (for details on detection logic, see "File of fan-control specifications") is detected (established) under the monitoring conditions, a shutdown process starts. A specific LED flash pattern (blue LED, 10 times) starts. The next PON operation is valid, and the flag is cleared upon the next power-on.
TEMP2	High temperature at MTB	Shutdown occurs if any values equal to or greater than minimum to require a shutdown are detected. 1 S * 3 times	RST4 = H (Monitoring starts 1 sec after the above conditions are established.)	If any values equal to or greater than minimum to require a shutdown are detected (established) under the monitoring conditions, a warning indication will be displayed for 30 sec, after which a shutdown process starts. A specific LED flash pattern (blue LED, 11 times) starts. The next PON operation is valid, and the flag is cleared upon the next power-on.
TMP_NG	High temperature in the drive circuits	Shutdown occurs if any values equal to or greater than minimum to require a shutdown are detected. 200 mS * 5 times (average)	Digital video RST2 = H	If any values equal to or greater than minimum to require a shutdown is detected (established) under the monitoring conditions, those changes in status will be transmitted to the main microcomputer via the UART. Upon receiving the data, a warning indication will be displayed for 30 sec, after which a shutdown process starts. The main microcomputer orders a specific LED flash pattern (blue LED, 4 times). The next PON operation is valid, and the flag is cleared upon the next power-on.
	Low temperature in the drive circuits			If any values equal to or greater than minimum to require a shutdown is detected (established) under the monitoring conditions, those changes in status will be transmitted to the main microcomputer via the UART. Upon receiving the data, the main microcomputer orders a specific LED flash pattern (blue LED, 4 times). The next PON operation is valid, and the flag is cleared upon the next power-on.

5.6.4 TRAP SWITCH

● Outline and Notes

For video data transmission inside this Plasma Display, digital signals are used. Therefore, this unit adopts the HDCP (High-bandwidth Digital Content Protection) system for copyright protection. This unit is also provided with a detection switch (TRAP switch) that will prohibit the unit from being turned on again "if the rear case of the unit is accidentally opened," in order to prevent the panel technology from being leaked out.

The TRAP switch is disabled while the unit is turned off.
When performing internal diagnosis of the PDP, fix the switch to the OFF position using adhesive tape before turning on the unit. After servicing, be sure to remove the adhesive tape.



WHEN THE TRAP SWITCH IS ACTIVATED

When the TRAP switch is activated, the red and blue LEDs will light.
In order to deactivate the TRAP switch, close the upper plate of the unit or fix the TRAP switch to the OFF position in the manner described above.
Then, follow procedures (1) or (2) below:

(1) Deactivating with the remote control unit

- Enter Factory mode.
- Proceed to the INITIALIZE layer of Factory mode. Hold the DISPLAY key pressed for more than 5 seconds.

(2) Deactivating with the RS-232C command

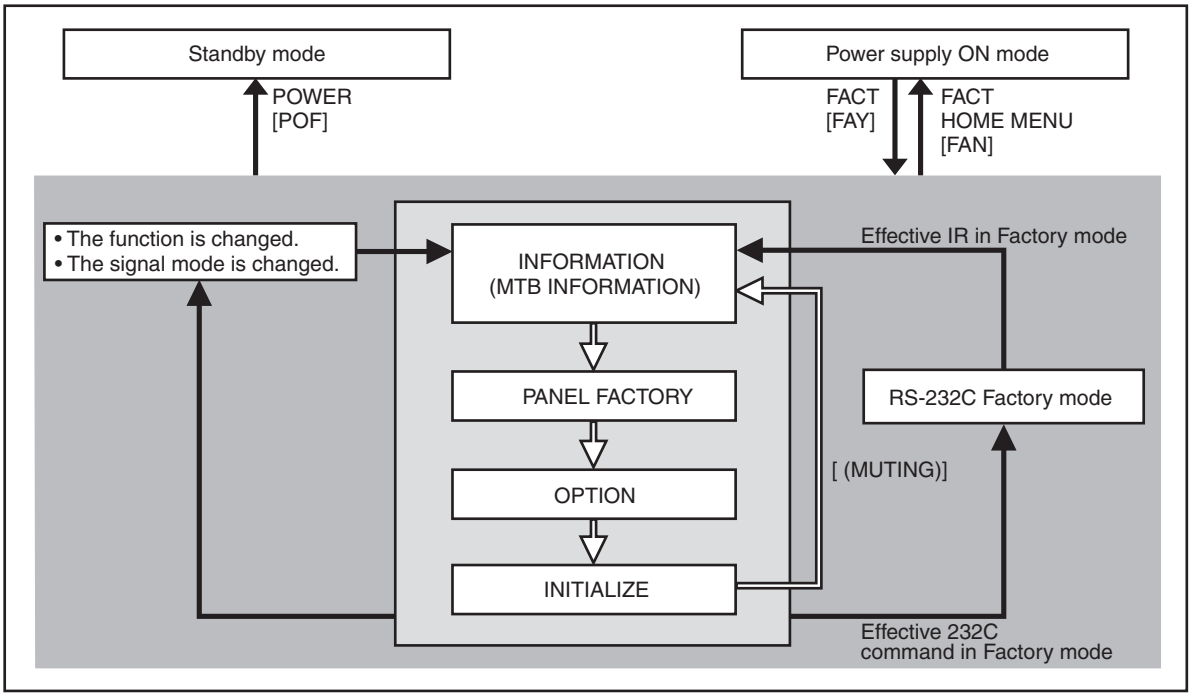
- Send the CTM (cancel) command.

6. SERVICE FACTORY MODE

6.1 OUTLINE OF THE SERVICE FACTORY MODE

Operations during Service Factory mode are described here.

6.1.1 SERVICE FACTORY MODE TRANSITION CHART



6.1.2 HOW TO ENTER/EXIT SERVICE FACTORY MODE

■ How to enter Service Factory Mode

By using a PDP service remote control)

- PDP service remote control : Press [FACTORY] key.

By issuing RS-232C commands)

- During normal Standby mode : Issue [PON] then [FAY].
- During normal operation mode : Issue [FAY].

■ How to exit Service Factory Mode

By using a PDP service remote control)

- PDP service remote control : press [FACTORY] key.
- Supplied remote control unit : press [HOME MENU] key.

By issuing RS-232C commands)

- Issue [FAN].

■ How to enter Service Factory Mode by Using the supplied Remote Control Unit

- Same as previous model. Please refer to the technical document (Service Know-how).

6.1.3 FUNCTIONS WHEN ENTERING THE SERVICE FACTORY MODE

■ Fuctions whose setting are set to OFF

The settings for the following functions are set to OFF when Service Factory mode is entered (including when the “FAY” command is received) :

Function	Remarks
2-Screen Operation	Input function set on the main side is selected.
FREEZE	
Auto size, Side Mask	It is not performed during Factory mode.
ORBITER, Mask control	Central value operation (ORBITER)
Sleep Timer	Cancel the operation.
Room light sensor	Turn off the detecting operation (Setting data will be retained.)
Blue LED dimmer	Turn off the operation (Setting data will be retained.)
Detection of the TRAP switch	The detection operation is stopped.
TRAP history	To a possible turning on though the memory is maintained.
Display of TV guide	Finish the TV-GUIDE function.
Setting of Parental Control	When this is turned off, the block of the screen is released.
Power Control	Turn off the operation (However, the setting maintains it.)
Image Position	Central value operation

Note: Enter the factory after cancelling ACI because the ACI operation setting OFF and not done.

■ User data

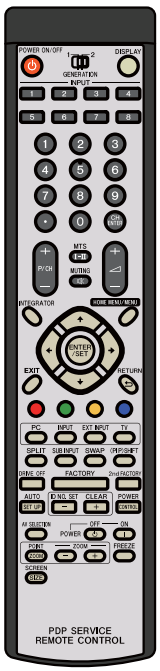
User data will be treated as follows :

- User data on picture-quality and audio-quality adjustments are not reflected, and factory-preset data are output (user data will be retained in memory). When the unit enters Service Factory mode, the current audio-quality adjustment data will be still be retained in memory.
- User-setting data will be applied to the various settings (items on the menus), signal formats, and the items that are associated with path change (HDMI settings, etc.).
- Data on screen (i.e., screen position; meaning clock dividers, and not including data on screen size). Are reset to the default values (data stored in memory will be retained). Screen size will be retained.

6.1.4 REMOTE CONTROL CODE IN SERVICE FACTORY MODE

Remote Control Keys	Basic Functions	Remarks
MUTING	Switching the main items.	Shifting to the next main item (top).
⬇ (DOWN)	Switching the subtitled items.	Shifting downward to the next subtitiled item.
⬆ (UP)	Switching the subtitled items.	Shifting upward to the next upper layer.
⬅ (LEFT)	Decreasing the adjustment value.	Decreasing the adjustment value.
➡ (RIGHT)	Increasing the adjustment value.	Increasing the adjustment value.
ENTER/SET	Switching the layers.	Shifting downward or upward to the next lower or upper layer.
INPUT	Selecting INPUT.	Shifting the INPUT to the next function.
INPUTxx	Selecting INPUT.	Switching the INPUT to xx. (xx=1 to 7 etc)
CH+/P+	Increasing the channel number.	
CH-/P-	Decreasing the channel number.	
Numeric Keys	Function: TV	Function: TV (previously selected channel number is selected)
POWER	Power OFF.	Turning the power off.
FACTORY	Factory OFF (Factory mode)	In Factory mode, turning Factory mode off.
	Factory ON (Non-Factory mode).	In Non-Factory mode, turn Fuctory mode on.
HOME MENU	Menu ON.	In Factory mode, turn Factory mode off.
VOLUME+	Volume UP.	Increasing 10 the adjustment value. (PANEL FACTORY)
VOLUME-	Volume DOWN.	Decreasing 10 the adjustment value. (PANEL FACTORY)
DRIVE OFF (Note1)	Drive Mode OFF.	Turning Drive mode off.
INTEGRATOR	INTEGRATOR MENU ON.	Enter INTEGRATOR MODE.

(Note 1) When ten seconds have passed since the [DRIVE OFF] key was pressed at the standby, it becomes invalid. Please press [POWER] key from the [DRIVE OFF] key pressing within ten seconds when you do power supply ON while driven OFF.

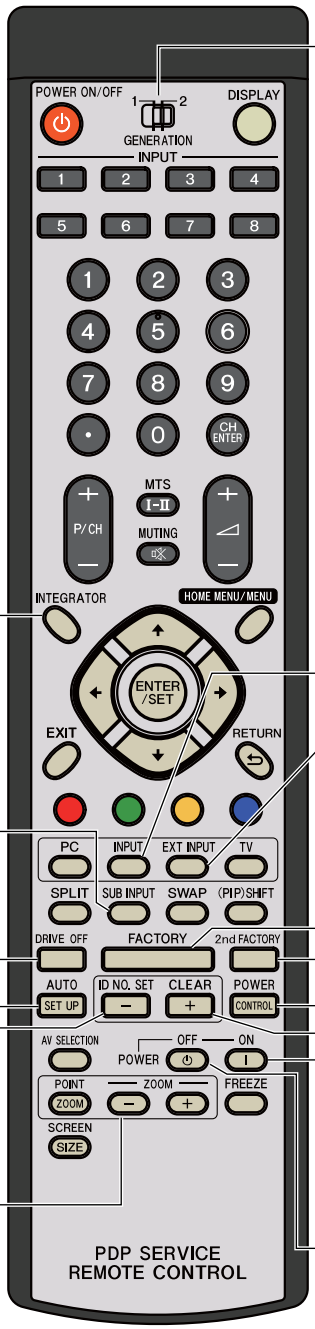


PDP service
remote control

PDP-4280HD
PDP-5080HD

6.1.5 PDP SERVICE REMOTE CONTROL

- The keys labeled with the same names on the service remote control unit have the same functions as those of the supplied remote control unit. (See "2.3 PANEL FACILITIES.")
- For the keys not provided on the supplied remote control unit, see the explanations below:



GENERATION switch for remote control codes
This switch selects the generation of remote control codes to be transmitted:
1: The old-generation codes are transmitted.
2: The new-generation codes are transmitted.
With this generation plasma display, set the switch to 2.

INTEGRATOR
Press this key to enter Integrator mode.

INPUT
Press this key to cyclically change the input source.

EXT INPUT
Press this key to cyclically change only the external input source.

SUB INPUT
Not used with this model.

DRIVE OFF
Press this key to turn off the panel drive.
For details on how to cancel this command, see the explanation for the DRV command.

FACTORY
Press this key to enter Factory mode.

2nd FACTORY
Not used with this model.

AUTO SETUP
Use this key for automatic setup, such as the display position setting when an analog PC signal is input.

ID NO. SET
Not used with this model.

POWER CONTROL
Not used with this model.

CLEAR
Not used with this model.

POWER ON
Press this key to turn on the unit.
This key cannot turn the unit off.

POWER OFF
Press this key to turn off the unit.
This key cannot turn the unit on.

POINT ZOOM
Not used with this model.

ZOOM +/-
Not used with this model.

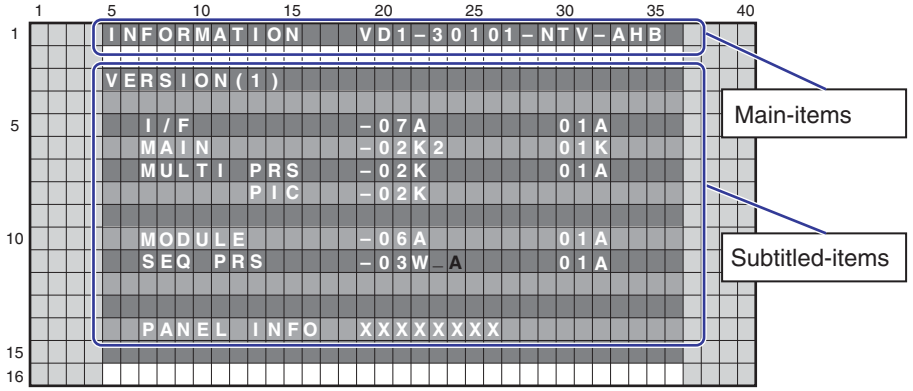
6.1.6 FACTORY HIERARCHICAL TABLE

Large Item	Middle Item	Small Item	Variable / Adjustment Range	Remarks
6.2.1 INFORMATION				
	6.2.1.1 VERSION (1)			
	6.2.1.2 VERSION (2)			
	6.2.1.3 VERSION (3)			
	6.2.1.4 MAIN NG	CLEAR <=>	NO <=> YES	
	6.2.1.5 TEMPERATURE			
	6.2.1.6 HOUR METER	MTB HOUR METER CLEAR	NO <=> YES	
	6.2.1.7 HDMI SIGNAL INFO 1			
	6.2.1.8 HDMI SIGNAL INFO 2			
	6.2.1.9 VDEC SIGNAL INFO 1			
	6.2.1.10 VDEC SIGNAL INFO 2			
	6.2.1.11 DTV TUNING STATUS 1			
	6.2.1.12 DTV TUNING STATUS 2			
	6.2.1.13 DTV TUNING STATUS 3			
	6.2.1.14 DTV TV-GUIDE BER			for the technical analysis
	6.2.1.15 DEBUG INFO			for the technical analysis
6.2.2 PANEL FACTORY (+)				
	6.2.2.1 PANEL INFORMATION			
	6.2.2.2 PANEL WORKS			
	6.2.2.3 POWER DOWN			
	6.2.2.4 SHUT DOWN			
	6.2.2.5 PANEL-1 ADJ (+)	VOL SUS <=>	000 to 255	Equivalent to VSU (Setting value: Factory adjustment value)
		VOL OFFSET <=>	000 to 255	Equivalent to VOF (Setting value: Factory adjustment value)
		VOL RST P <=>	000 to 255	Equivalent to VRP (Setting value: Factory adjustment value)
		VOL XPOFS1 <=>	000 to 255	Equivalent to VX1 (Setting value: Factory adjustment value)
		VOL XPOFS2 <=>	000 to 255	Equivalent to VX2 (Setting value: Factory adjustment value)
		VOL YNOFS1 <=>	000 to 255	Equivalent to VY1 (Setting value: Factory adjustment value)
		VOL YNOFS3 <=>	000 to 255	Equivalent to VY3 (Setting value: Factory adjustment value)
		VOL YNOFS4 <=>	000 to 255	Equivalent to VY4 (Setting value: Factory adjustment value)
		RESET1ST_KSB <=>	112 to 144	Equivalent to R1K (Setting value: 128 fixed)
		RESET2ND_KSB <=>	112 to 144	Equivalent to R2K (Setting value: 128 fixed)
		YSTL_1SF_KSB <=>	112 to 144	Equivalent to Y1K (Setting value: 128 fixed)
		YSTL_1SF_HZ <=>	112 to 144	Equivalent to Y1Z (Setting value: 128 fixed)
		XSUS_1ST_B <=>	112 to 144	Equivalent to X1B (Setting value: 128 fixed)
		YSUS_2ND_B <=>	112 to 144	Equivalent to Y2B (Setting value: 128 fixed)
		XSUS_3RD_B <=>	112 to 144	Equivalent to X3B (Setting value: 128 fixed)
		YSUS_B <=>	112 to 144	Equivalent to YSB (Setting value: 128 fixed)
		XSUS_B <=>	112 to 144	Equivalent to XSB (Setting value: 128 fixed)
		YSTL_KSB <=>	112 to 144	Equivalent to YTK (Setting value: 128 fixed)
		YSTL_HZ <=>	112 to 144	Equivalent to YTZ (Setting value: 128 fixed)
		YSTL_2SF_KSB <=>	112 to 144	Equivalent to Y2K (Setting value: 128 fixed)
		YSTL_2SF_HZ <=>	112 to 144	Equivalent to Y2Z (Setting value: 128 fixed)
		YSTL_FMR_KSB <=>	112 to 144	Equivalent to YNK (Setting value: 128 fixed)
		YSTL_FMR_HZ <=>	112 to 144	Equivalent to YNZ (Setting value: 128 fixed)
		SUS FREQ. <=>	MODE 1 to MODE 8	Equivalent to SFR (Setting value: MODE1)
	6.2.2.6 PANEL-2 ADJ (+)	R-HIGH <=>	000 to 511	Equivalent to PRH (Setting value: Factory adjustment value)
		G-HIGH <=>	000 to 511	Equivalent to PGH (Setting value: Factory adjustment value)
		B-HIGH <=>	000 to 511	Equivalent to PBH (Setting value: Factory adjustment value)
		R-LOW <=>	000 to 999	Equivalent to PRL (Setting value: 512 fixed)
		G-LOW <=>	000 to 999	Equivalent to PGL (Setting value: 512 fixed)
		B-LOW <=>	000 to 999	Equivalent to PBL (Setting value: 512 fixed)
		ABL <=>	000 to 255	Equivalent to ABL (Setting value: Factory adjustment value)
	6.2.2.7 PANEL FUNCTION (+)	R-LEVEL <=>	LV-0 to LV-7	Equivalent to RRL (Setting value: Lv-0)
		G-LEVEL <=>	LV-0 to LV-7	Equivalent to RGL (Setting value: Lv-0)
		B-LEVEL <=>	LV-0 to LV-7	Equivalent to RBL (Setting value: Lv-0)
		ADDRESS L1 <=>	PH0 to PH9	Equivalent to AP0S*- (Setting value: PH1)
		ADDRESS L2 <=>	PH0 to PH9	Equivalent to AP0S-* (Setting value: PH2)
		ADDRESS L3 <=>	PH0 to PH9	Equivalent to AP1S*- (Setting value: PH0)
		ADDRESS L4 <=>	PH0 to PH9	Equivalent to AP1S-* (Setting value: PH1)
		ADDRESS U1 <=>	PH0 to PH9	Equivalent to AP2S*- (Setting value: PH0)
		ADDRESS U2 <=>	PH0 to PH9	Equivalent to AP2S-* (Setting value: PH0)
		ADDRESS U3 <=>	PH0 to PH9	Equivalent to AP3S*- (Setting value: PH0)
		ADDRESS U4 <=>	PH0 to PH9	Equivalent to AP3S-* (Setting value: PH0)
		STK MODE <=>	OFF <=> MODE1 to MODE8 <=>	Equivalent to SMK (Setting value: MODE1)

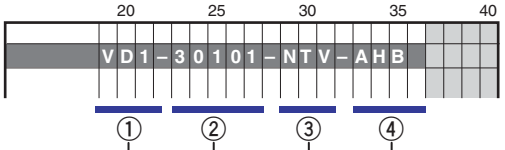
*: Setting value

Large Item	Middle Item	Small Item	Variable / Adjustment Range	Remarks
6.2.2 PANEL FACTORY (+)				
	6.2.2.8 ETC. (+)	BACKUP DATA <=>	NO OPRT <=> TRANSFER or ERR	Equivalent to BCP
		DIGITAL EEPROM <=>	NO OPRT <=> DELETE/REPAIR	Equivalent to FAJ/UAJ
		PD INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CPD
		SD INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CSD
		HR-MTR INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CHM
		PM/B1-B5 <=>	NO OPRT <=> CLEAR	Equivalent to CPM
		P COUNT INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CPC
		MAX TEMP. <=>	NO OPRT <=> CLEAR	Equivalent to CMT
	6.2.2.9 RASTER MASK SETUP (+)	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 72V <=> 75V <=>	Equivalent to MKS+S00
		RST MASK 01 <=>		Equivalent to MKS+S51
		• • •		• • •
		RST MASK 25 <=>		Equivalent to MKS+S75
	6.2.2.10 PATTERN MASK SETUP (+)	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 72V <=> 75V <=>	Equivalent to MKS+S00
		PTN MASK 01 <=>		Equivalent to MKS+S01
		• • •		• • •
		PTN MASK 49 <=>		Equivalent to MKS+S49
	6.2.2.11 COMBI MASK SETUP (+)	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 72V <=> 75V <=>	Equivalent to MKC+S00
		CMB MASK 01 <=>		Equivalent to MKC+S01
		• • •		• • •
		CMB MASK 17 <=>		Equivalent to MKC+S17
6.2.3 OPTION				
	6.2.3.1 EDID WRITE MODE <=>		DISABLE <=> ENABLE	Exclusively used for production line
	6.2.3.2 ANTENNA MODE <=>		CABLE <=> AIR	
	6.2.3.3 AFT <=>		DISABLE <=> ENABLE	
	6.2.3.4 SYNC DET (+)			for the technical analysis
	6.2.3.5 CC (+)			for the technical analysis
6.2.4 INITIALIZE				
	6.2.4.1 SIDE MASK LEVEL (+)	SIDE MASK LEVEL <=>		
	6.2.4.2 FINAL SETUP	DATA RESET <=>	NO <=> YES	
	6.2.4.3 HMG/HG SERVICE MODE	MODE SHIFT <=>	NO <=> YES	
	6.2.4.4 Wide XGA AUTO <=>		DISABLE <=> ENABLE	Exclusively used for technical analysis (details omitted)

6.1.7 INDICATIONS IN SERVICE FACTORY MODE



■ Main-item indications



① Input function

Input Functions	OSD
VIDEO 1 to 7	VD 1 to 7
Terrestrial Wave A	ARA
Terrestrial Wave B	ARB
Cable A	CBA
Cable B	CBB
Home Gallery (Regular model only)	HG
Home Media Gallery (ELITE model only)	HMG
PC	PC

② SIG mode and Screen size

Note: See SIG-Mode Tables. (See next page.)

③ Color system and Signal type

Color System and Signal Type		OSD
NTSC	Composite input	NTV
	S-connector input	NTS
Y/CB/CR		CBR
Y/PB/PR		PBR
RGB		RGB
Digital Video signal		DIG

④ Option (Destination, Panel Generation, etc.)

Options	OSD
Regular model	ATB
ELITE model	AHB

② SIG Mode and Screen size (by User is displayed)

1st and 2nd characters : Resolution of the input signal
3rd and 4th characters : Refresh rate of the input signal
5th character : Selection of the screen size

■ Input signal mode table for video signals (resolutions and V frequencies)

1st to 4th Character		Signal Type	Fv (Hz)	Fh (kHz)
10	60	SDTV*525i	60.000	15.750
20	60	SDTV*525p	60.000	31.500
30	60	HDTV*1125i	60.000	33.750
40	60	HDTV*750p	60.000	45.000
50	24	HDTV*1125p	24.000	27.000
50	60	HDTV*1125p	60.000	67.500

Fv: Vertical Frequency, Fh: Horizontal Frequency

■ Input signal mode table for PC signals (resolutions and V frequencies)

1st to 4th Character		Signal Type	Fv (Hz)	Fh (kHz)
C1	70	720 x 400	70.087	31.469
C2	60	640 x 480	59.940	31.469
C4	60	800 x 600	60.317	37.879
C6	60	1280 x 720	60.000	44.800
C7	60	1024 x 768	60.004	48.363
C9	60	1360 x 768	60.015	47.712
D6	60	1280 x 1024	60.000	64.000

Fv: Vertical Frequency, Fh: Horizontal Frequency

■ Current selection of the screen size

5th Character	GUI Notation	VIDEO	PC	Remarks
0	DOT BY DOT	● (*)	–	
1	4:3	●	●	
2	FULL	●	●	
3	ZOOM	●	–	
4	CINEMA	●	–	
5	WIDE	●	–	

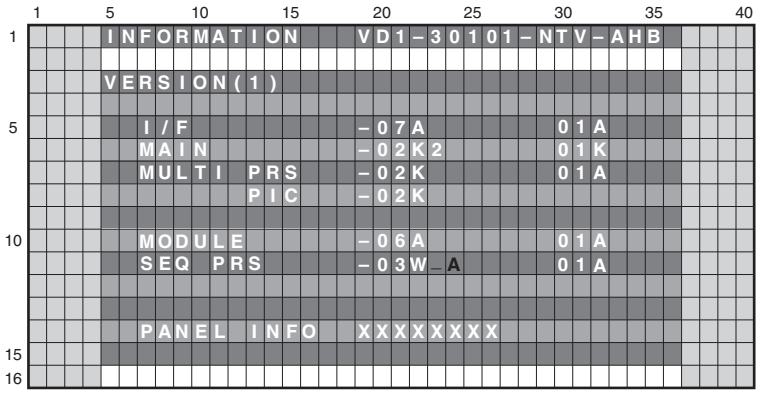
●: supported, –: unsupported
Note (*): It is effective only with models having the Full HD panel.

6.2 DETAILS OF FACTORY MENU
6.2.1 INFORMATION

■ **Operation items**

No.	Function/Display	Context	RS-232C Command
6.2.1.1	VERSION (1)	The Flash memory versions for each device are displayed. (Common part)	QS1
6.2.1.2	VERSION (2)	The Flash memory versions for each device are displayed. (Individual part)	QSE
6.2.1.3	VERSION (3)		
6.2.1.4	MAIN NG	The Shutdown Message ID/Event Times in Main Microcomputer are displayed.	QNG
6.2.1.5	TEMPERATURE	The Temperature/FAN rotating status in Main Microcomputer are displayed.	QMT
6.2.1.6	HOUR METER	The HOUR METER/P-COUNT information are displayed.	QS3
6.2.1.7	HDMI SIGNAL INFO 1	The Information of HDMI information files are displayed.	–
6.2.1.8	HDMI SIGNAL INFO 2		
6.2.1.9	VDEC SIGNAL INFO 1	Display the Signal Information on VDEC.	–
6.2.1.10	VDEC SIGNAL INFO 2		
6.2.1.11	DTV TUNING STATUS 1	Digital broadcast information and status is displayed upon receiving digital broadcast signal.	–
6.2.1.12	DTV TUNING STATUS 2		
6.2.1.13	DTV TUNING STATUS 3		
6.2.1.14	DTV TV-GUIDE BER	TV-Guide Bit Error Rate information	–
6.2.1.15	DEBUG INFO	Debug information	–

6.2.1.1 VERSION (1)

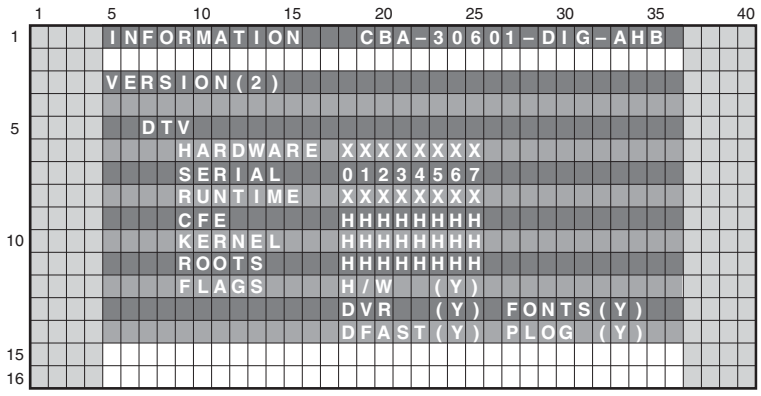


Microcomputer	Item Name	Display Example (Execution program block)	Display Example (Boot block)
I/F microcomputer	I/F	-07A	01A
Main microcomputer	MAIN	-02K2	01K
Multi processor	MULTI PRS	-02K	01A
Multi processor	MULTI PIC	-02K	
Module microcomputer	MODULE	-06A	01A
Sequence processor	SEQ PRS	-03W_A	01A

Note: In the 29-32 rows, the Boot version information on each device is displayed.
In the 19-24 rows, the version of the execution program is displayed.

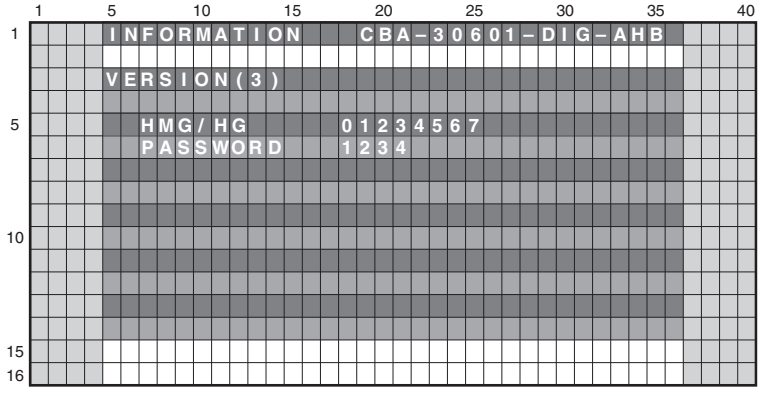
• **PANEL INFO:** It displays the generation of the panel, inchage and the type of the panel. For details on display values and settings, see "10: Panel Information" in "9.3.1. QS1 (PANEL STATUS)."

6.2.1.2 VERSION (2)



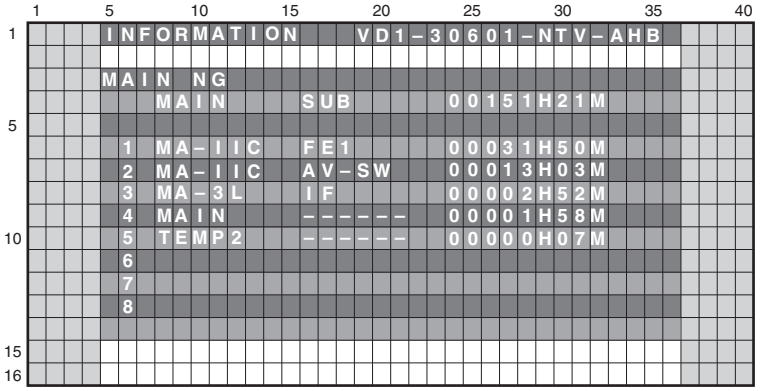
Meaning	Item Name	Display Example
DTV Hardware Version	HARDWARE	XXXXXXXX
DTV Hardware Serial	SERIAL	01234567
DTV Runtime Version	RUNTIME	HHHHHHHH
CFE Version	CFE	HHHHHHHH
KERNEL Version	KERNEL	HHHHHHHH
ROOTS Version	ROOTS	HHHHHHHH
FLAGS	FLAGS	H/W (Y)
		DVR (Y) FONTS(Y)
		DFAST(Y) PLOG (Y)

6.2.1.3 VERSION (3)



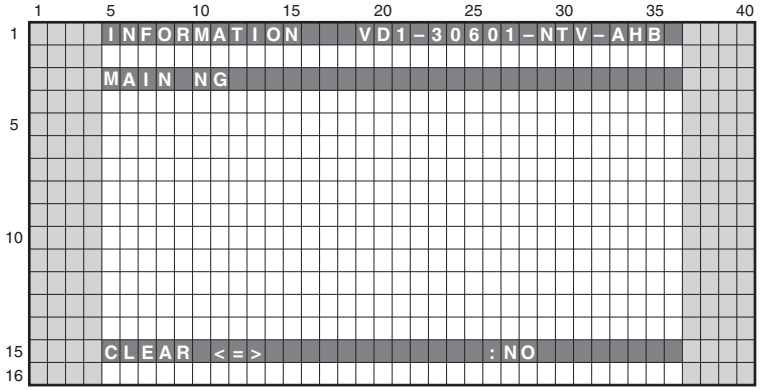
Meaning	Item Name	Display Example
HMG/HG module Version	HMG/HG	01234567
User Password	PASSWORD	1234

6.2.1.4 MAIN NG



MTB side's Shutdown NG information

OSD: MAIN	OSD: SUB	Cause of Shutdown
AUDIO	----	Short-circuit of the speaker terminal or failure of audio amplifier.
MODULE	----	Failure of communication to Module microcomputer.
MA-3L		3-wire Serial Communication of Main microcomputer.
	IF	Communication failure of IF microcomputer
	MULTI	Multi Processor communication failure
MA-IIC		IIC Communication failure of Main microcomputer
	FE1	Analog Tuner 1
	FE2	Analog Tuner 2
	MSPMAP	MSP/MAP
	AV-SW	AV Switch
	RGB-SW	RGB Switch
	VDEC	VDEC
	SDRAM	VDEC - SDRAM
	ADC	AD/PLL
	HDMI	HDMI
	US-MSP	MSP
MAIN		Communication failure of Main microcomputer
FAN	FAN1	Fan stopped
	FAN2	Fan stopped (Only with models having the Full HD panel)
TEMP2		Abnormally high temperature at MTB.
DTUNER		Failure of Digital Tuner
	PS/RST	Failure to DTV Starting
	RETRY	DTV communication error
	DE-BCM	Abnormally in BCM7038
	DE-FE	Tuner 1 or 2
	DE-CAS	Card I/F IC
	DE-VBI	VBI Slicer
	DE-EPI	EEPROM
	TV-G	TV-Guide Error
	HOME-G	Failure at Home Gallery
	DTVMID	Middleware
	DTVAPP	Application
RST-MA	M-DCDC	Abnormally in RST2 of MAIN Assy. (power decrease of DC-DC converter)
	RELAY	Abnormally in RST4 of MAIN Assy. (power decrease of Relay power)
HMG		Failure at Home Media Gallery
	HMG	Home Media Gallery startup error
MA-EEP		IIC communication line between EEPROM and MAIN.

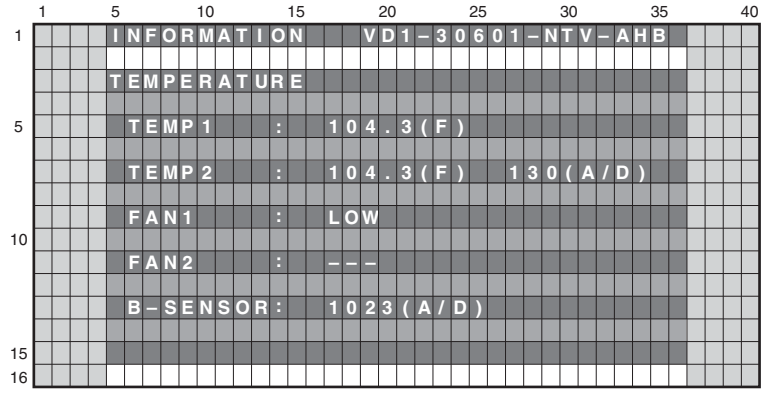


Operation:

Even if [⬅] key or [➡] key is pressed, {CLEAR <=> :YES} ⇔ {CLEAR <=> :NO} is repeated.
If the [ENTER/SET] key is kept on pressing for 5 second when the status of this menu is <YES>, clear process will begin.

6.2.1.5 TEMPERATURE

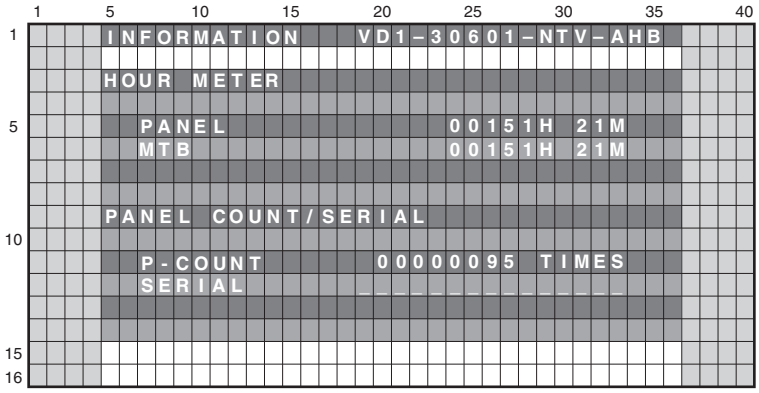
A present temperature and the FAN rotation are displayed.
If either [⬅] key or [➡] key is pressed, the display data is refreshed.



• Display/Meaning

TEMP1 : The temperature of the sensor on the panel side is displayed by the Fahrenheit (F).
TEMP2 : The temperature conversion display is done with 10 bit the A/D input value of IF uCOM 90 pin (AN4). It is displayed by both the Fahrenheit (F) and 8 bit A/D value.
(Remark:When temperature (F) of the sensor becomes more than a specified temperature, the shutdown start of processing.)
FAN1 : The value of the FAN rotating state is displayed.
STOP: stopped, LOW: slow speed, HIGH: high speed.
FAN2 : The value of the rotation state of FAN is displayed.
During a rotation of FAN, 8bit D/A value output from 2 pin (DA0) of IF uCOM is displayed.
It is displayed with OFF during a stop (only for the FHD model).
B-SENSOR : The value that indicated the degree of brightness input into an Room light sensor is displayed.
AD value when the output of the Room light sensor was input into 89 pin (AN5) of IF uCOM is displayed.

6.2.1.6 HOUR METER



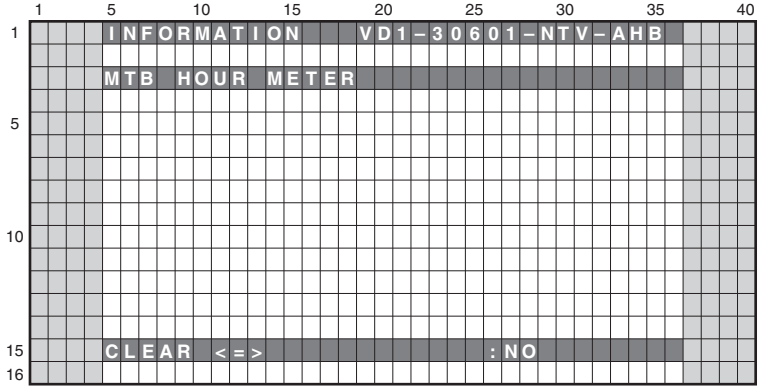
• Display/Meaning

Meaning	Item Name	Display Example	Corresponding RS-232C Command
HOUR METER (PANEL)	PANEL	00151H 21M	QS3
HOUR METER (MTB)	MTB	00151H 21M	QS3
POWER ON COUNTER	P-COUNT	00000095 TIMES	QS3
SYSTEM SERIAL	SERIAL		QS3

Note: The PANEL-side's HOUR METER/P-COUNT acquires information from the PANEL-side.

• MTB HOUR METER

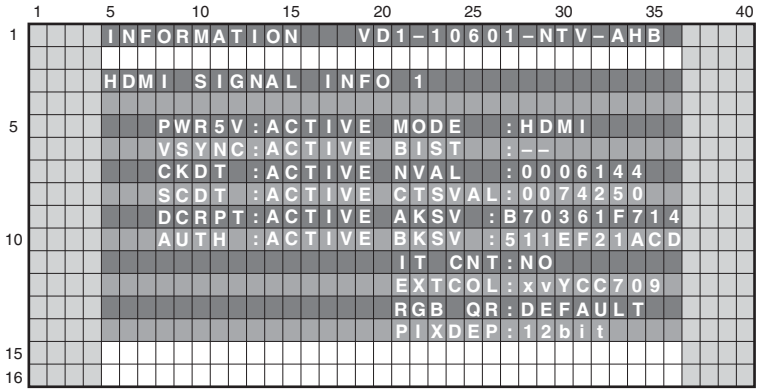
In HOUR METER screen on Factory Menu, press the [ENTER] key, and then it moves to the screnn to clear MTB HOUR METER. (MTB HOUR METER is cleared only.)



Operation:

Even if [⬅] key or [➡] key is pressed, {CLEAR <=> :YES} ⇔ {CLEAR <=> :NO} is repeated.
If the [ENTER/SET] key is kept on pressing for 5 second when the status of this menu is <YES>, clear process will begin.
MTB HOUR METER is cleared only. PANEL HOUR METER is not cleared.

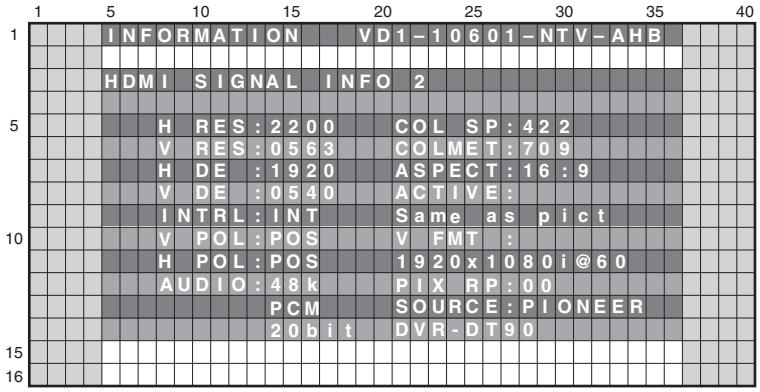
6.2.1.7 HDMI SIGNAL INFO 1



Displays the input signal information of HDMI terminal

Item	Meaning
PWR5V	+5 V power detection (18 pin of HDMI terminal)
VSYNC	VSYNC detection
CKDT	Clock detection
SCDT	SYNC detection
DCRPT	HDCP decryption status
AUTHEN	HDCP authentication status
MODE	HDMI mode status
BIST	----
NVAL	N value
CTSVAL	CTS value
AKSV	Shadow AKSV value
BKSV	Shadow BKSV value
IT CNT	IT content (AVI info)
EXTCOL	Extension calorimetry (AVI info)
RGV QR	RGB range (AVI info)
PIXDEP	Number of pixel/bit

6.2.1.8 HDMI SIGNAL INFO 2



Displays input signal status of HDMI terminal

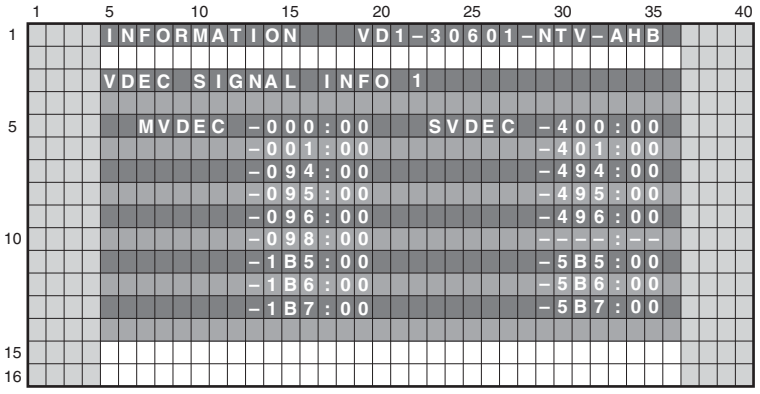
Display Item	Meaning
H RES	Number of horizontal pixels (decimal)
V RES	Number of vertical lines (decimal)
H DE	Number of effectively horizontal pixels (decimal)
V DE	Number of effectively vertical lines (decimal)
INTRL	Interlace (=INT) or progressive (=PRG)
V POL	VSYNC polarity
H POL	HSYNC polarity
AUDIO (first line)	Sampling frequency. (ex. DVD: 48kHz, CD: 44.1kHz) *1
AUDIO (second line)	PCM (PCM) or No PCM (=no PCM)
AUDIO (third line)	Quantization bit
COL SP	Color space (AVI Info) (422 or 444 or RGB) *2
COLMET	Calorimetry (AVI Info) (SD: 601, HD:709) *2
ASPECT	Aspect (AVI Info)
ACTIVE	Video active format (AVI Info)
V FMT	Video identification code (AVI Info)
PIX RP	Pixel repeat value for 2880 dot
SOURCE (first line)	Vendor name of the emission device
SOURCE (second line)	Model name of the emission device

*1: Confirm if this item is displayed when the audio is not outputted.
*2: If may not match to the state of source devices when the color is abnormal.

Display of HDMI FACTORY and correspondence of resolution
Please confirm the following 5 items when the picture doesn't come out.

Input Signal	FACTORY Display				
	H RES	V RES	H DE	V DE	V FMT
480i (525i) @ 60	858	262 or 263	720	240	720x480i @ 60
480p (525p) @ 60	858	525	720	480	720x480p @60
1080i (1125i) @ 60	2200	562 or 563	1920	540	1920x1080i @ 60
720p (750p) @ 60	1650	750	1280	720	1280x720p @ 60
1080p (1125p) @ 60	2200	1125	1920	1080	1920x1080p @ 60
1080p (1125p) @ 24	2750	1125	1920	1080	1920x1080p @ 24

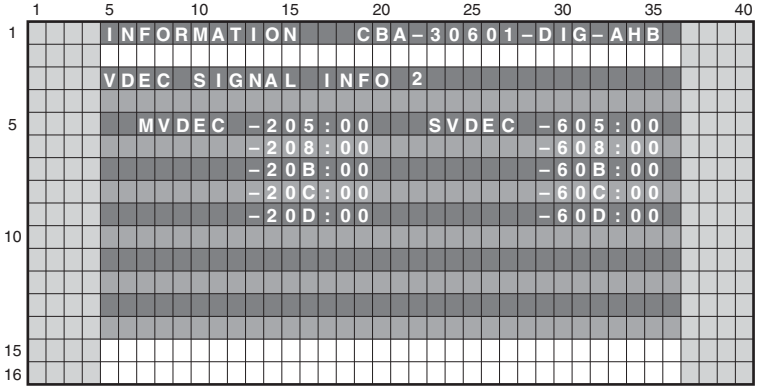
6.2.1.9 VDEC SIGNAL INFO 1



Displays signal status that is input to VDEC.

Device	Sub Address (Main screen)	Sub Address (Sub screen)	Meaning
VDEC	000h	400h	Line system distinction result
	001h	401h	VTR distinction result
	094h	494h	Slot number
	095h	495h	Color system distinction result
	096h	496h	ACC coefficient
	098h	---	3D YC flag
	1B5h	5B5h	MV detection 1
	1B6h	5B6h	MV detection 2
	1B7h	5B7h	MV detection 3

6.2.1.10 VDEC SIGNAL INFO 2

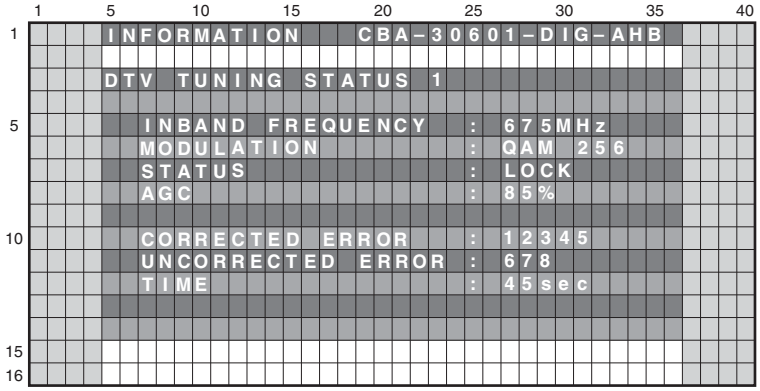


Displays signal status that is input to VDEC.

Device	Sub Address (Main screen)	Sub Address (Sub screen)	Meaning
VDEC	205h	605h	CC detection 1
	208h	608h	CC detection 2
	20Bh	60Bh	CC-CRI detection
	20Ch	60Ch	XDS content advisor 0
	20Dh	60Dh	XDS content advisor 1

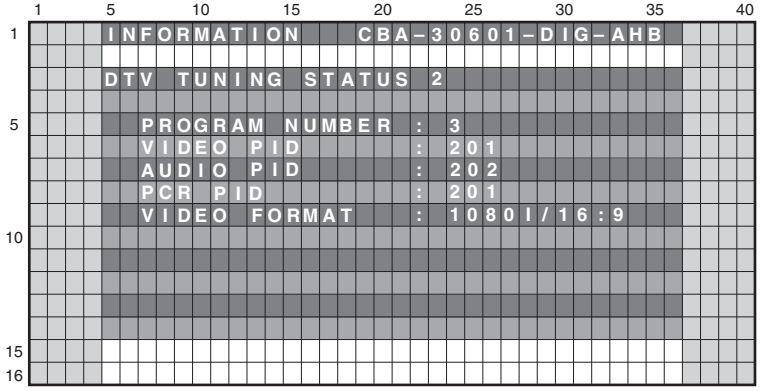
6.2.1.11 DTV TUNING STATUS 1

Displays digital broadcast signal information and status upon receiving digital signal.



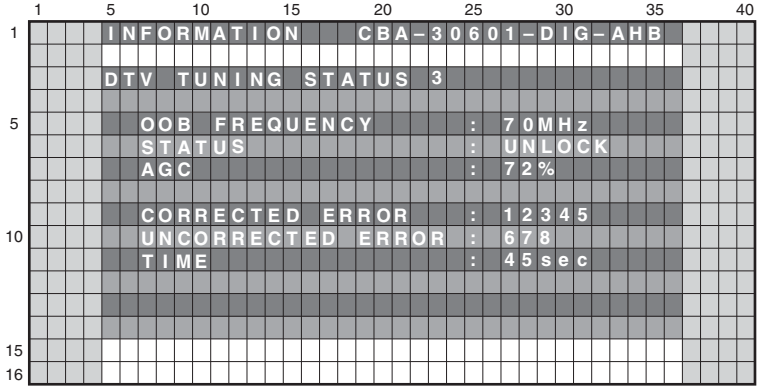
6.2.1.12 DTV TUNING STATUS 2

Displays digital broadcast signal information and status upon receiving digital signal.



6.2.1.13 DTV TUNING STATUS 3

Displays digital broadcast signal information and status upon receiving digital signal.



6.2.1.14 DTV TV-GUIDE BER

Exclusively used for production line. TV-Guide error bit ratio information is displayed.

6.2.1.15 DEBUG INFO

Exclusively used for technical analysis. Debug information for development use is displayed.

6.2.2 PANEL FACTORY (+)

■ Operation Items

This is the menu screen for the adjustment of the panel. Data acquisition and value adjustment can be performed for the following items:

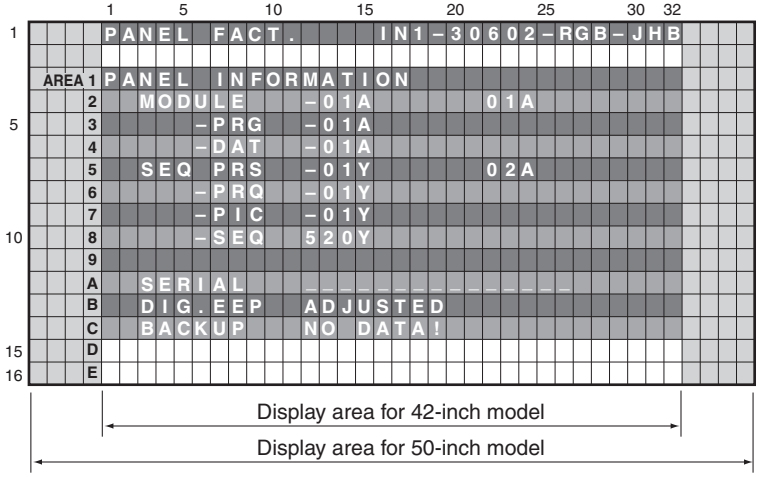
No.	Indication	Description of functions
6.2.2.1	PANEL INFORMATION	Data, such as the version of the microcomputer of the panel, product serial number, and statuses of memories for adjustment values for the main unit and for backup, are displayed.
6.2.2.2	PANEL WORKS	Operation data, such as accumulated pulse-meter count, accumulated hour-meter count, accumulated power-on count, and the temperature detected by the sensor, are displayed.
6.2.2.3	POWER DOWN	The power-down history is displayed, with the hour-meter values that indicate the hour values when power-downs occurred.
6.2.2.4	SHUT DOWN	The shutdown history is displayed, with the hour-meter values that indicate the hour values when shutdowns occurred.
6.2.2.5	PANEL-1 ADJ (+)	Settings of the driving pulse timing and driving voltage can be performed.
6.2.2.6	PANEL-2 ADJ (+)	White balance and ABL (power consumption) for the panel can be set.
6.2.2.7	PANEL FUNCTION (+)	Perform panel-degradation correction-level setting, phase adjustment of the address, and the streaking-correction setting.
6.2.2.8	ETC. (+)	Copying of backup data and clearance of various data can be performed.
6.2.2.9	RASTER MASK SETUP (+)	The mask indication (RASTER) can be set and indicated.
6.2.2.10	PATTERN MASK SETUP (+)	The mask indication (PATTERN) can be set and indicated.
6.2.2.11	COMBI MASK SETUP (+)	The mask indication (COMBI) can be set and indicated.

■ Details of indications in each layer

• In the following examples, GUI images for a 50-inch model are indicated. Although the display areas for the menu for 42-inch and 50-inch models are different, the items to be displayed are the same.

6.2.2.1 PANEL INFORMATION

• Data, such as the version of the microcomputer of the panel, product serial number, and statuses of memories for adjustment values for the main unit and for backup, are displayed. No other layers are nested below this layer, and there are no adjustment items.



■ Key operation

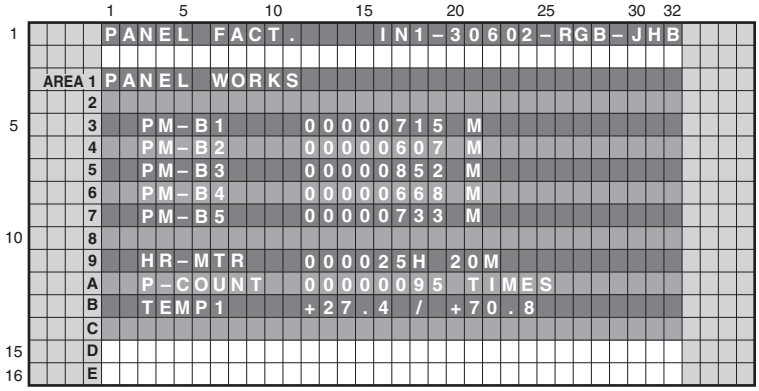
<DOWN> : Shifting to PANEL WORKS
<UP> : Shifting to COMBI MASK SETUP (+)
<L/R> : Updating displayed information

■ Display items:

MODULE : The version of data written in the Module microcomputer (IC3151) is indicated.
-PRG : The program version of the Module microcomputer is indicated.
-DAT : The data version of the Module microcomputer is indicated.
SEQ-PRG : The version of data written in the Sequence LSI (IC3401) is indicated.
-PRG : The program version of the Sequence LSI is indicated.
-PIC : The Picture-data version of the Sequence LSI is indicated.
-SEQ : The sequence-data version of the Sequence LSI is indicated.
SERIAL : The serial number of the module is indicated.
DIG.EEP : The adjusted status of the EEPROM that is mounted on the DIGITAL Assy is indicated.
BACKUP : The adjusted status of the EEPROM for backup that is mounted on the SENSOR Assy is indicated.

6.2.2.2 PANEL WORKS

• Data on operations, such as the accumulated pulse-meter counts, hour-meter count, power-on count, and temperature detected by the sensor, are sent back. No other layers are nested below this layer, and there are no adjustment items.



■ Key operation

<DOWN> : Shifting to POWER DOWN
<UP> : Shifting to PANEL INFORMATION
<L/R> : Updating displayed information

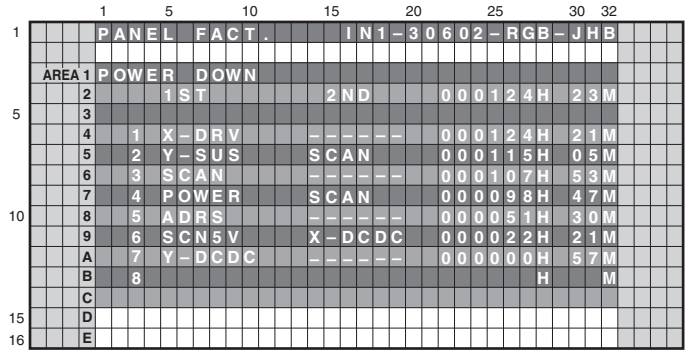
← Temperature unit is " °C (Centigrade) ".

■ Contents of the Display item

• PM-B1 to B5: The accumulated pulse-meter counts for the 5 blocks on the screen are indicated. (the lowest-order digit represents millions of pulses.)
• HR-MTR: The hour-meter value (accumulated power-on hours) is indicated.
• P-COUNT: The accumulated power-on count is indicated.
• TEMP1: The current panel temperature and the historical maximum temperature recorded in memory are indicated. The range of temperature indication is from -50.0 to +99.9. (The temperature unit is " °C (Centigrade) ".)

6.2.2.3 POWER DOWN

- The power-down history is displayed. The last most 8 power-down histories are displayed with the hour-meter values that indicate the hours when power-downs occurred. No other layers are nested below this layer, and there are no adjustment items.


PANEL FACT. IN1-30602-RGB-JHB
AREA 1 POWER DOWN
1ST 2ND 000124H 23M
1 X-DRV ------ 000124H 21M
2 Y-SUS SCAN 000115H 05M
3 SCAN ------ 000107H 53M
4 POWER SCAN 000098H 47M
5 ADRS ------ 000051H 30M
6 SCN5V X-DCDC 000022H 21M
7 Y-DCDC ------ 000000H 57M
8 H M

■ Key operation

<DOWN> : Shifting to SHUT DOWN
<UP> : Shifting to PANEL WORKS
<L/R> : Updating displayed information

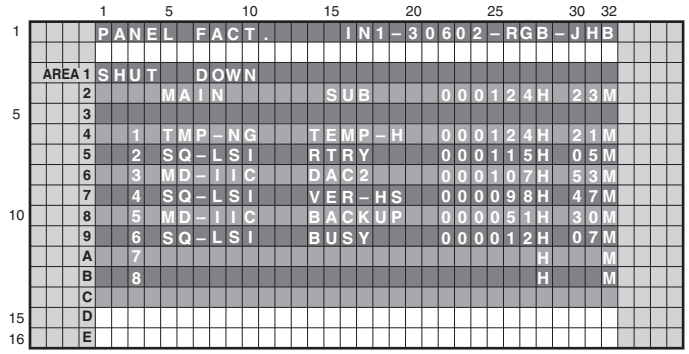
<Causes of power-down and corresponding OSD indications>

Cause of power-down	OSD Indication	Cause of power-down	OSD Indication
POWER SUPPLY Unit	P-PWR	ADDRESS Assy	ADRS
SCAN Assy	SCAN	X DRIVE Assy	X-DRV
5 V power for SCAN Assy	SCN5V	DC/DC converter for X drive	X-DCDC
Y DRIVE Assy	Y-DRV	X-drive SUS circuit	X-SUS
DC/DC converter for Y drive	Y-DCDC	Unknown	UNKNOW
Y-drive SUS circuit	Y-SUS		

* When power-down is confirmed, the factor is displayed as "1st", "2nd", according to the accuracy order.
* The power-down history is not recorded when the power-down occurred at the same place and same time.

6.2.2.4 SHUT DOWN

- The shutdown history is displayed. The last most 8 shutdown histories are displayed with the hour-meter values that indicate the hours when shutdowns occurred. No other layers are nested below this layer, and there are no adjustment items.


PANEL FACT. IN1-30602-RGB-JHB
AREA 1 SHUT DOWN
MAIN SUB 000124H 23M
1 TMP-NG TEMP-H 000124H 21M
2 SQ-LSI RTRY 000115H 05M
3 MD-IIC DAC2 000107H 53M
4 SQ-LSI VER-HS 000098H 47M
5 MD-IIC BACKUP 000051H 30M
6 SQ-LSI BUSY 000012H 07M
7 H M
8 H M

■ Key operation

<DOWN> : Shifting to PANEL-1 ADJ (+)
<UP> : Shifting to POWER DOWN
<L/R> : Updating displayed information

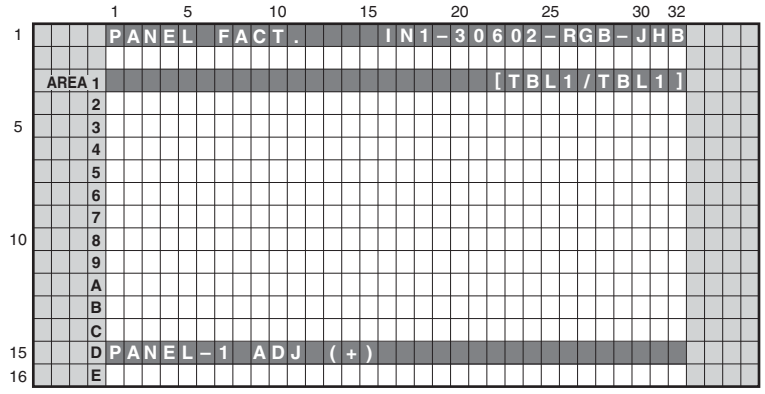
* When there is detail information when shutdown occurred, the possible defective part is displayed as Sub information.

<Cause of shut-down and corresponding OSD Indication >

Cause of shut-down (MAIN)		Cause of shut-down (SUB)	
Item	**OSD Indication**	**Item**	**OSD Indication**
Drive Processing IC	SQ_LSI	Communication Error	RTRY
		Drive Stop	SQNO
		Communication Busy	BUSY
		Version mismatching (H/S) (M/S)	VER-HS, VER-MS
MDU-IIC	MD-IIC	MAIN EEPROM Communication Error	EEPROM
		BACKUP EEPROM Communication Error	BACKUP
		DAC1 Communication Error	DAC1
		DAC2 Communication Error	DAC2
Abnormally in RST2 power supply	RST2	–	–
Panel temperature	TMP-NG	High temperature of the panel	TEMP-H
		Low temperature of the panel	TEMP-L

6.2.2.5 PANEL-1 ADJ (+)

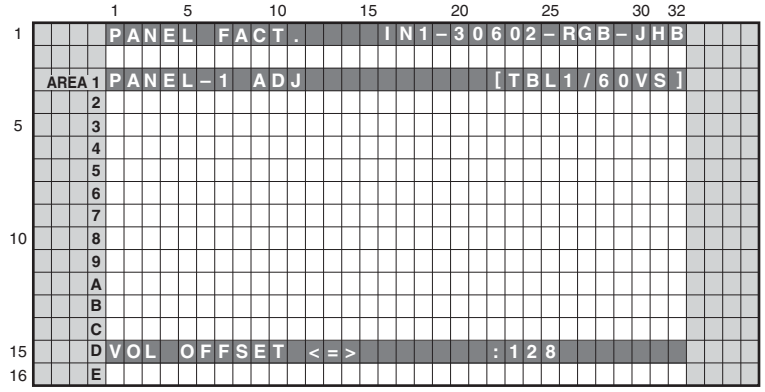
- Timing and voltage for the driving pulse are set. At third line of the screen, the WB (White Balance) table and frequency table indicating operation status are displayed, and at fifteenth line of the screen, the item for the upper nested layer (PANEL-1 ADJ [+]) is displayed. Pressing the SET key shifts the screen to the next nested layer below for item selection.



■ Key operation

<DOWN> : Shifting to PANEL-2 ADJ (+)
<UP> : Shifting to POWER DOWN
<SET> : Shifting to the next nested layer

- When the screen is shifted to the next nested layer below, the item of the layer above is indicated at third line of the screen, and the item of the layer below is indicated at fifteenth line.
- The configuration of the menu screen is the same for any adjustment item that has lower layers.
- To confirm that the change in the SUS FREQ. setting has resulted in diminishing of AM radio interference in this layer, after changing the setting, turn the unit off then back on.

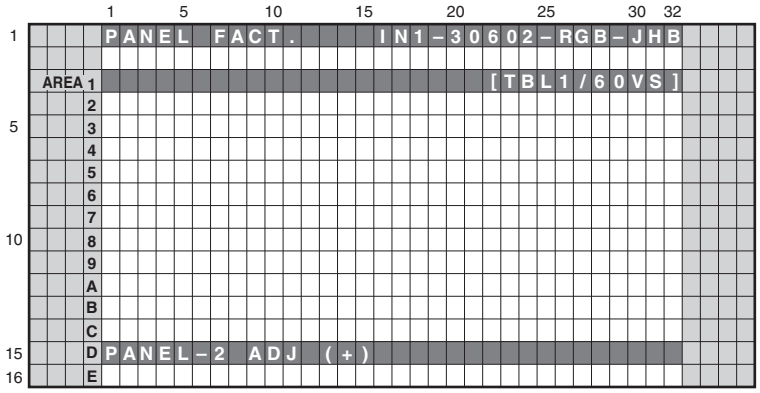


■ Key operation

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<VOL+> : Adding by 10 to the adjustment/setting value
<VOL-> : Subtracting by 10 from the adjustment/setting value
<SET> : Determining the adjustment/setting value and shifting to the upper layer

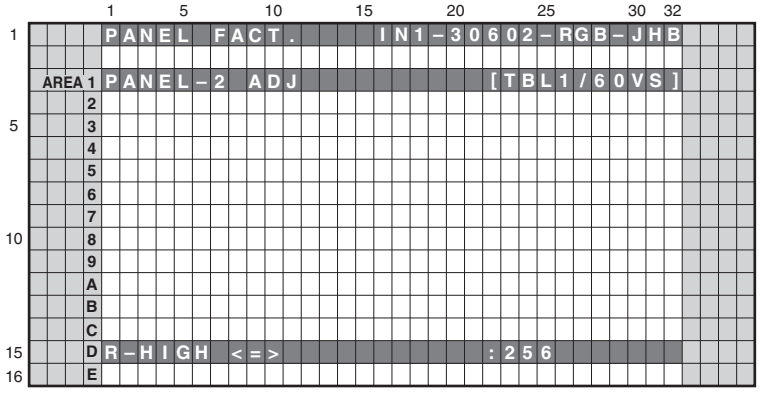
6.2.2.6 PANEL-2 ADJ (+)

- White balance can be adjusted by adjusting R, G, and B gain. Pressing the SET key shifts the screen to the next nested layer below for item selection.



■ **Key operation**

<DOWN> : Shifting to PANEL FUNCTION (+)
<UP> : Shifting to PANEL-1 ADJ (+)
<SET> : Shifting to the next nested layer



■ **Key operation**

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/ setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<VOL+> : Adding by 10 to the adjustment/ setting value
<VOL-> : Subtracting by 10 from the adjustment/setting value
<SET> : Determining the adjustment/setting value and shifting to the upper layer

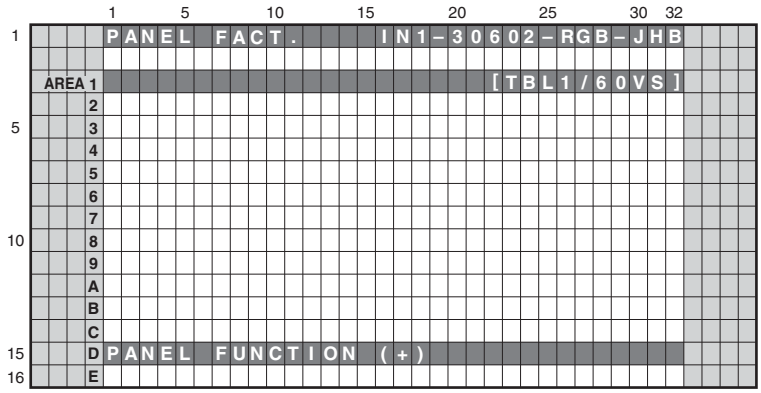
The ABL/WB adjustment values are grouped into up to four tables, depending on the drive sequences. The adjustment value for the actually driven table is displayed. The number of the adjustment table and the drive sequence currently selected are displayed on the right side of the third line as the On-Screen display.

Drive sequence and adjustment table

Sequence Name	Video50	Video60	Video72	Video75	PC60
Adjustment Value Table	TBL2	TBL1	TBL1	TBL3	TBL4

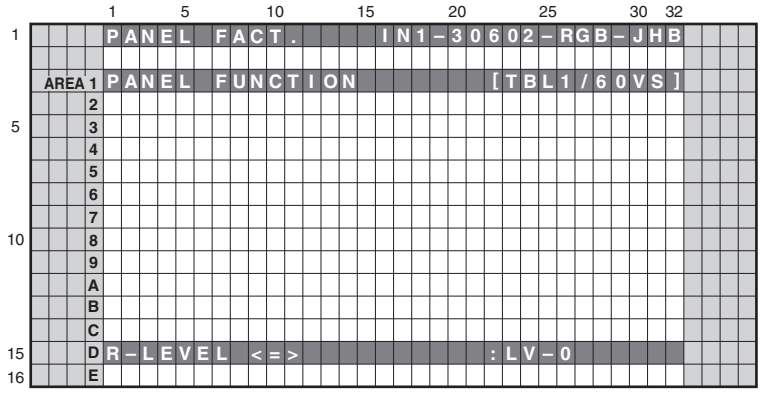
6.2.2.7 PANEL FUNCTION (+)

- A setting for panel degradation correction can be made. Pressing the SET key shifts the screen to the next nested layer below for item selection.



■ **Key operation**

<DOWN> : Shifting to ETC.(+)
<UP> : Shifting to PANEL-2 ADJ (+)
<SET> : Shifting to the next nested layer

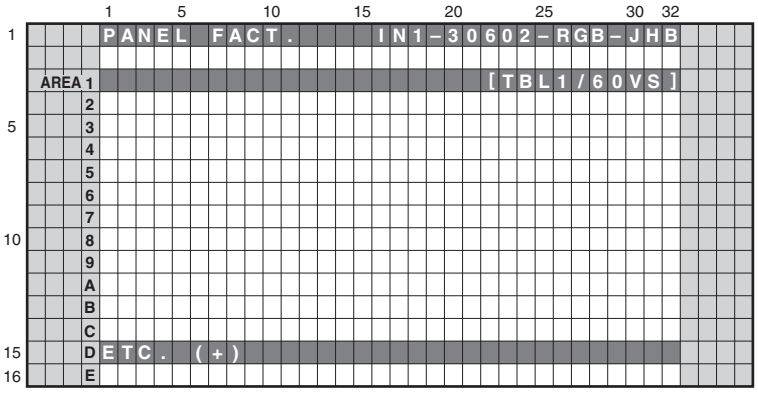


■ **Key operation**

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/ setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<SET> : Determining the adjustment/setting value and shifting to the upper layer

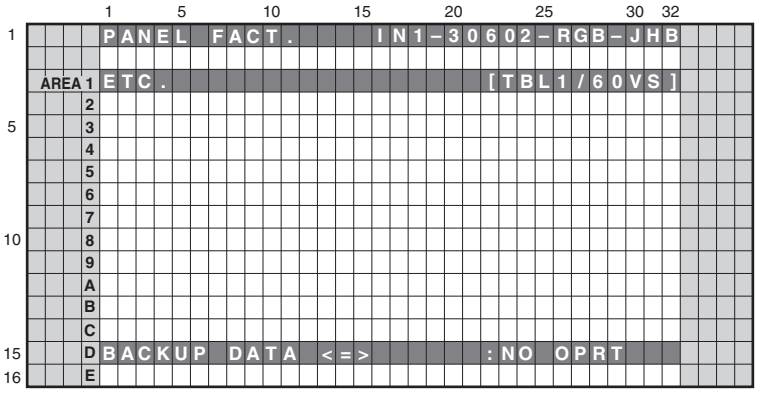
6.2.2.8 ETC. (+)

- The setting about the backup of panel adjusting value and various data on panel operational information can be cleared. Pressing the SET key shifts the screen to the next nested layer below for item selection.



■ **Key operation**

<DOWN> : Shifting to RASTER MASK SETUP (+)
<UP> : Shifting to PANEL FUNCTION (+)
<SET> : Shifting to the next nested layer

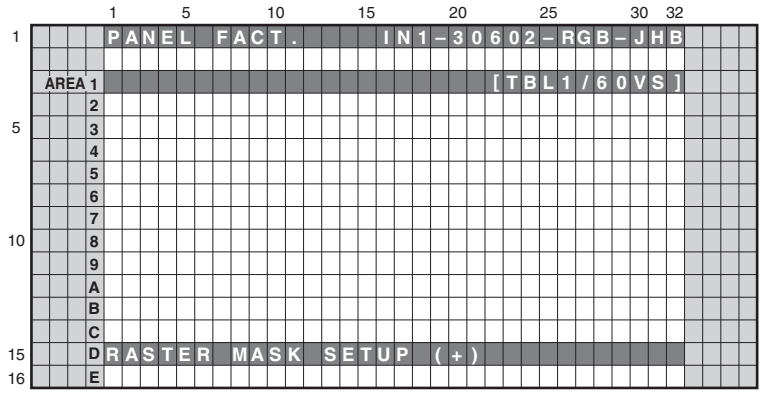


■ **Key operation**

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment/ setting value
<LEFT> : Subtracting by one from the adjustment/setting value
<SET> : Determining the adjustment/setting value and shifting to the upper layer

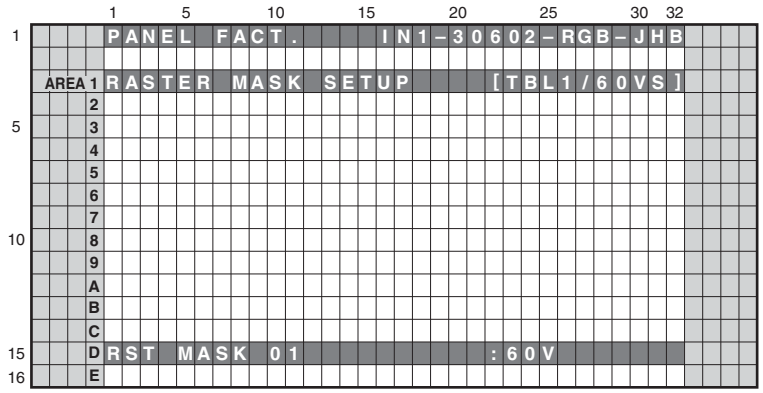
6.2.2.9 RASTER MASK SETUP (+)

• This menu set the RASTER MASK and the drive sequence at RASTER MASK state. Pressing the SET key shifts the screen to the next nested layer below for item selection.



■ **Key operation**

<DOWN> : Shifting to PATTERN MASK SETUP (+)
<UP> : Shifting to ETC. (+)
<SET> : Shifting to the next nested layer



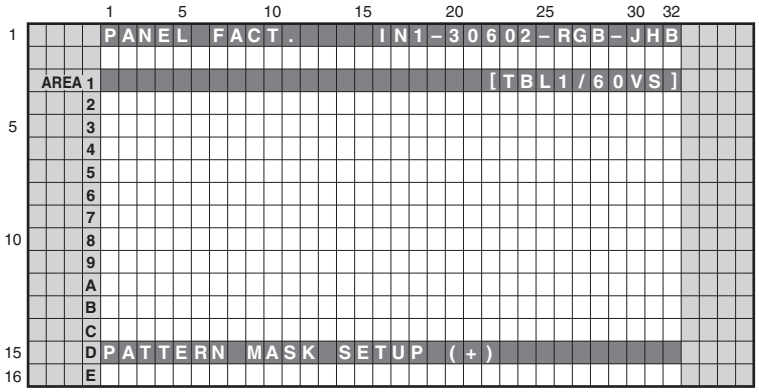
■ **Key operation**

<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<SET> : Determining the adjustment/setting value and shifting to the upper layer

• The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V and 60P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.

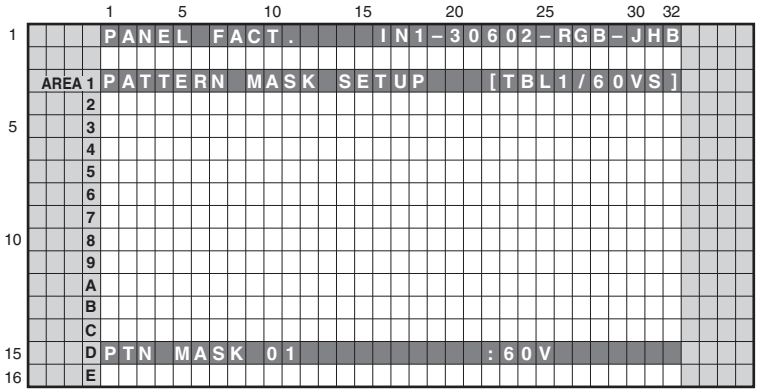
6.2.2.10 PATTERN MASK SETUP (+)

- This menu set the PATTERN MASK and the drive sequence at PATTERN MASK state. Pressing the SET key shifts the screen to the next nested layer below for item selection.



■ Key operation

<DOWN> : Shifting to COMBI MASK SETUP (+)
<UP> : Shifting to RASTER MASK SETUP (+)
<SET> : Shifting to the next nested layer



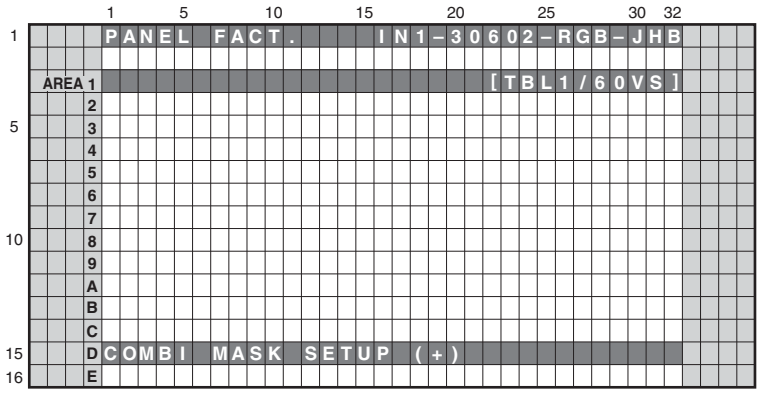
■ Key operation

<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<SET> : Determining the adjustment/setting value and shifting to the upper layer

- The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V and 60P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.

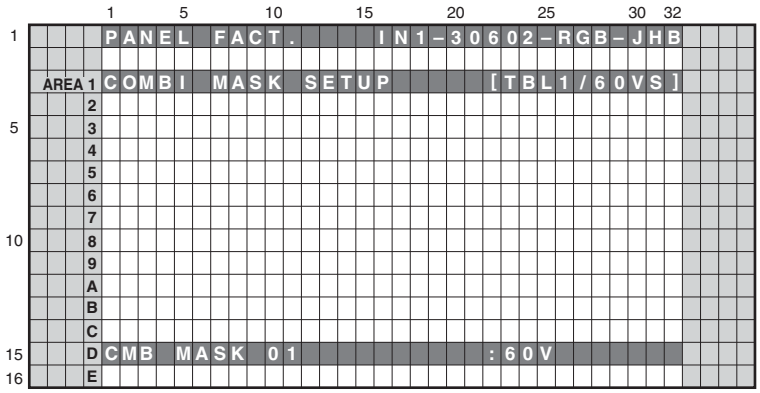
6.2.2.11 COMBI MASK SETUP (+)

- This menu set the COMBI MASK and the drive sequence at COMBI MASK state. Pressing the SET key shifts the screen to the next nested layer below for item selection.



■ Key operation

<DOWN> : Shifting to PANEL INFORMATION
<UP> : Shifting to PATTERN MASK SETUP (+)
<SET> : Shifting to the next nested layer



■ Key operation

<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<SET> : Determining the adjustment/setting value and shifting to the upper layer

- The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V and 60P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.

6.2.3 OPTION

Operation item

No.	Function	Content	RS-232C
6.2.3.1	EDID WRITE MODE <=>	DISABLE <=> ENABLE	----
6.2.3.2	ANTENNA MODE <=>	CABLE <=> AIR	----
6.2.3.3	AFT <=>	OFF <=> ON (Controls AFT action)	----
6.2.3.4	SYNC DET (+)	Exclusively used for technical analysis	----
6.2.3.5	CC (+)	Exclusively used for technical analysis	----

6.2.3.1 EDID WRITE MODE <=>

Exclusively used for production line.

6.2.3.2 ANTENNA MODE <=>

Exclusively used for production line.

6.2.3.3 AFT <=>

Exclusively used for production line.

6.2.3.4 SYNC DET (+)

Exclusively used for technical analysis (details omitted).

6.2.3.5 CC (+)

Exclusively used for technical analysis (details omitted).

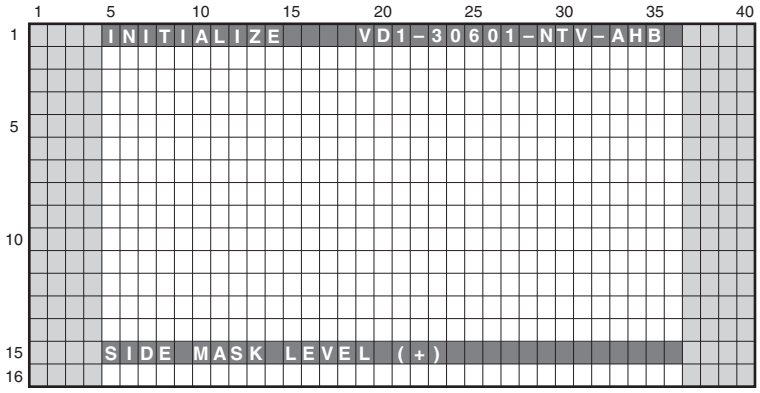
6.2.4 INITIALIZE

Operation item

No.	Function	Content	RS-232C
6.2.4.1	SIDE MASK LEVEL (+)	Configure the color of the side mask.	SML
6.2.4.2	FINAL SETUP (+)	Initialize flash memorys on virgin product status	FST
6.2.4.3	HMG/HG SERVICE MODE	Enter HMG/HG SERVICE MODE	–––
6.2.4.4	Wide XGA AUTO <=>	Exclusively used for technical analsyis.	–––

Note: When there is an altered history due to an open TRAP SW, if the "DISPLAY" key is held for at least 5 seconds on the above menu, the altered history will be cleared and the unit will be back to normal.

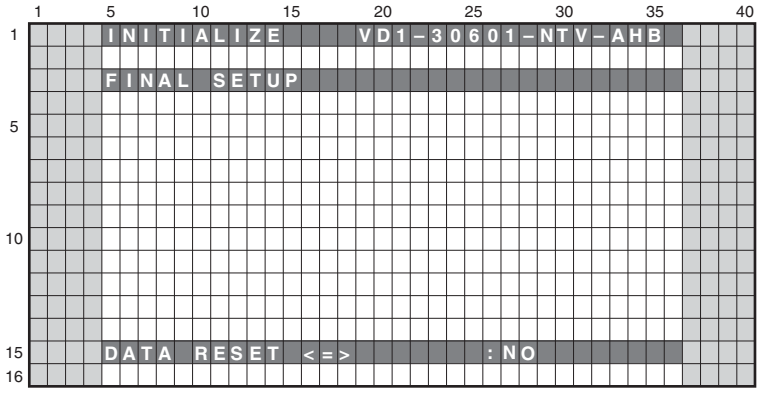
6.2.4.1 SIDE MASK LEVEL (+)



To configure sidemask level (To adjust the values, input signal is required).

Display	Content	RS-232C
SIDE MASK LEVEL <=>	Adjust Side Mask level (Initial value: 80, Adjustable range: 000 to 255)	SML

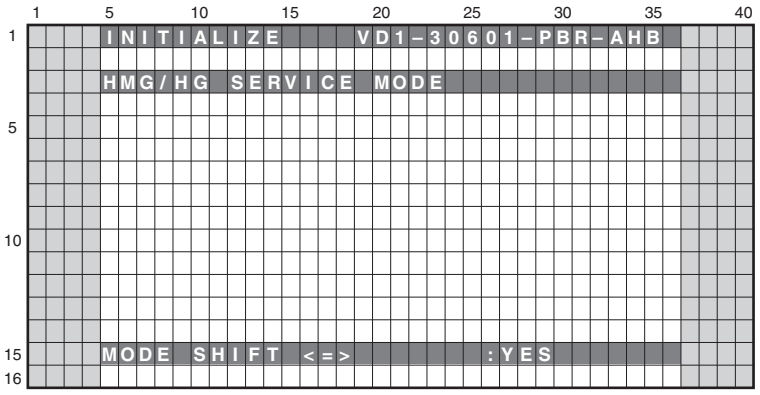
6.2.4.2 FINAL SETUP (+)



- To reset each memory values to factory default values. Factory command is "FST".
- When the configuration is set to <NO> and the [ENTER/SET] key is pressed, no action is taken and the menu returns to previous screen.
- When the configuration is set to <YES> and the [ENTER/SET] key is pressed for 5 seconds, the reset action executes.

Be sure to disconnect and connect the AC cable after FINAL SETUP.
When replacing the MAIN Assy, the FINAL SETUP is required.

6.2.4.3 HMG/HG SERVICE MODE



The value of all memorized data are set to shipment status.
If the [ENTER] key is kept on pressing for 5 second when the status of this menu is <YES>, HMG/HG SERVICE mode will be done.

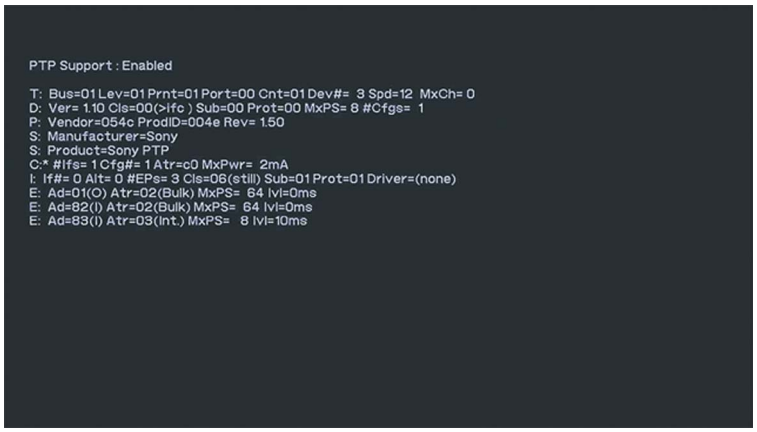
For ELITE model

Be sure to do above procedure at input fuction except HMG.
For details, refer to the service manual for the ELITE model.

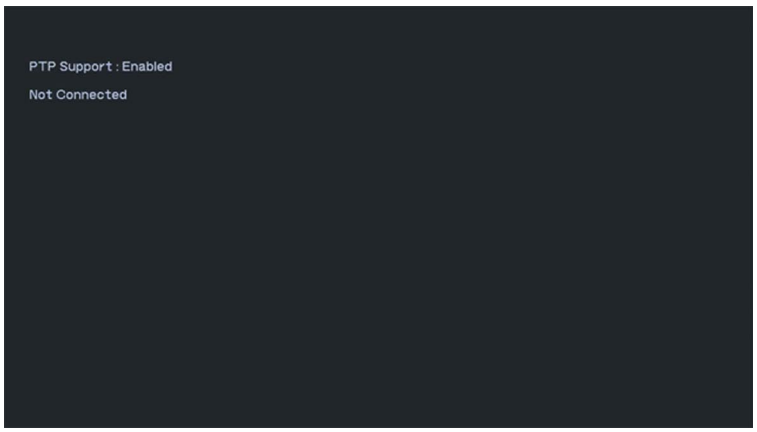
■ HG (Home Gallery) SERVICE MODE (Regular model)

1. Home Gallery Screen

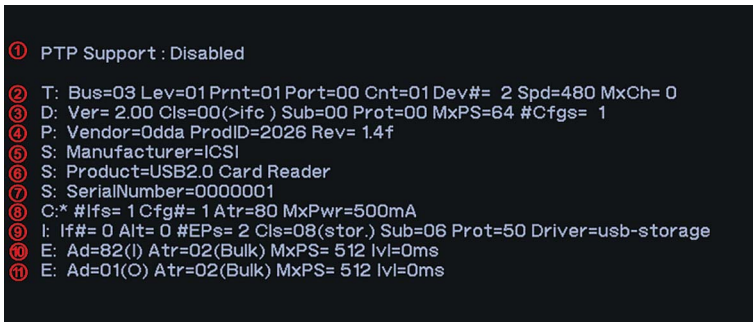
(1) When the USB device is connected


PTP Support : Enabled
T: Bus=01 Lev=01 Prnt=01 Port=00 Cnt=01 Dev#= 3 Spd=12 MxCh= 0
D: Ver= 1.10 Cls=00(>ifc) Sub=00 Prot=00 MxPS= 8 #Cfgs= 1
P: Vendor=054c ProdID=004e Rev= 1.50
S: Manufacturer=Sony
S: Product=Sony PTP
C:* #Ifs= 1 Cfg#= 1 Atr=c0 MxPwr= 2mA
I: If#= 0 Alt= 0 #EPs= 3 Cls=06(still) Sub=01 Prot=01 Driver=(none)
E: Ad=01(O) Atr=02(Bulk) MxPS= 64 Ivl=0ms
E: Ad=82(I) Atr=02(Bulk) MxPS= 64 Ivl=0ms
E: Ad=83(I) Atr=03(Int.) MxPS= 8 Ivl=10ms

(2) When the USB device is not connected



(3) Each item explanation (Example)


① ① PTP Support : Disabled
②
③ ② T: Bus=03 Lev=01 Prnt=01 Port=00 Cnt=01 Dev#= 2 Spd=480 MxCh= 0
④ ③ D: Ver= 2.00 Cls=00(>ifc) Sub=00 Prot=00 MxPS=64 #Cfgs= 1
⑤ ④ P: Vendor=0dda ProdID=2026 Rev= 1.4f
⑥ ⑤ S: Manufacturer=ICSI
⑦ ⑥ S: Product=USB2.0 Card Reader
⑧ ⑦ S: SerialNumber=0000001
⑨ ⑧ C:* #Ifs= 1 Cfg#= 1 Atr=80 MxPwr=500mA
⑩ ⑨ I: If#= 0 Alt= 0 #EPs= 2 Cls=08(stor.) Sub=06 Prot=50 Driver=usb-storage
⑪ ⑩ E: Ad=82(I) Atr=02(Bulk) MxPS= 512 Ivl=0ms
⑪ E: Ad=01(O) Atr=02(Bulk) MxPS= 512 Ivl=0ms

① PTP Support

Disable	PTP Non-Support	String
Enable	PTP Support	String

② T (Topology info)

Bus	Bus Number	Decimal
Lev	Level in topology for this bus	Decimal
Prnt	Parent Device Number	Decimal
Port	Connector/Port on Parent for this device	Decimal

Cnt	Count of devices at this level	Decimal
Dev#	Device Number	Decimal
Spd	Device Speed in Mbps	Decimal
MxCh	Max Children	Decimal

③ D (Device descriptor info)

Ver	Device USB version	Hexadecimal
Cls	Device Class	Hexadecimal
Sub	Device Sub Class	Hexadecimal
Prot	Device Protocol	Hexadecimal
MxPS	Max Packet Size of Default Endpoint	Decimal
#Cfgs	Number Configurations	Decimal

④ P (Product ID info)

Vendor	Vendor ID code	Hexadecimal
ProdID	Product ID code	Hexadecimal
Rev	Product revision number	Hexadecimal

⑤ S (String descriptor info - 1)

Manufacturer		String

⑥ S (String descriptor info - 2)

Product		String

⑦ S (String descriptor info - 3)

SerialNumber		String

⑧ C (Configuration descriptor info)

#Ifs	Number of Interfaces	Decimal
#Cfg	Configuration Number	Decimal
Atr	Attributes	Hexadecimal
MxPwr	MaxPower in mA	Decimal

⑨ I (Interface descriptor info)

If#	Interface Number	Decimal
Alt	Alternate Setting Number	Decimal
#Eps	Number of Endpoints	Decimal
Cls	Interface Class	Hexadecimal(String)
Sub	Interface Sub Class	Hexadecimal
Prot	Interface Protocol	Hexadecimal
Driver	Driver name	String

⑩ E (Endpoint descriptor info)

⑪ E (Endpoint descriptor info)

Ad	Endpoint Address (I=In, O=Out)	Hexadecimal(String)
Atr	Attributes	Hexadecimal(String)
MxPS	Endpoint Max Packet Size	Decimal
Ivl	Interval (max) between transfers	Decimal

2. End method

It is the same as the case that Home Gallery displays.

6.2.4.4 Wide XGA AUTO <=>

Exclusively used for technical analsyis (details omitted).

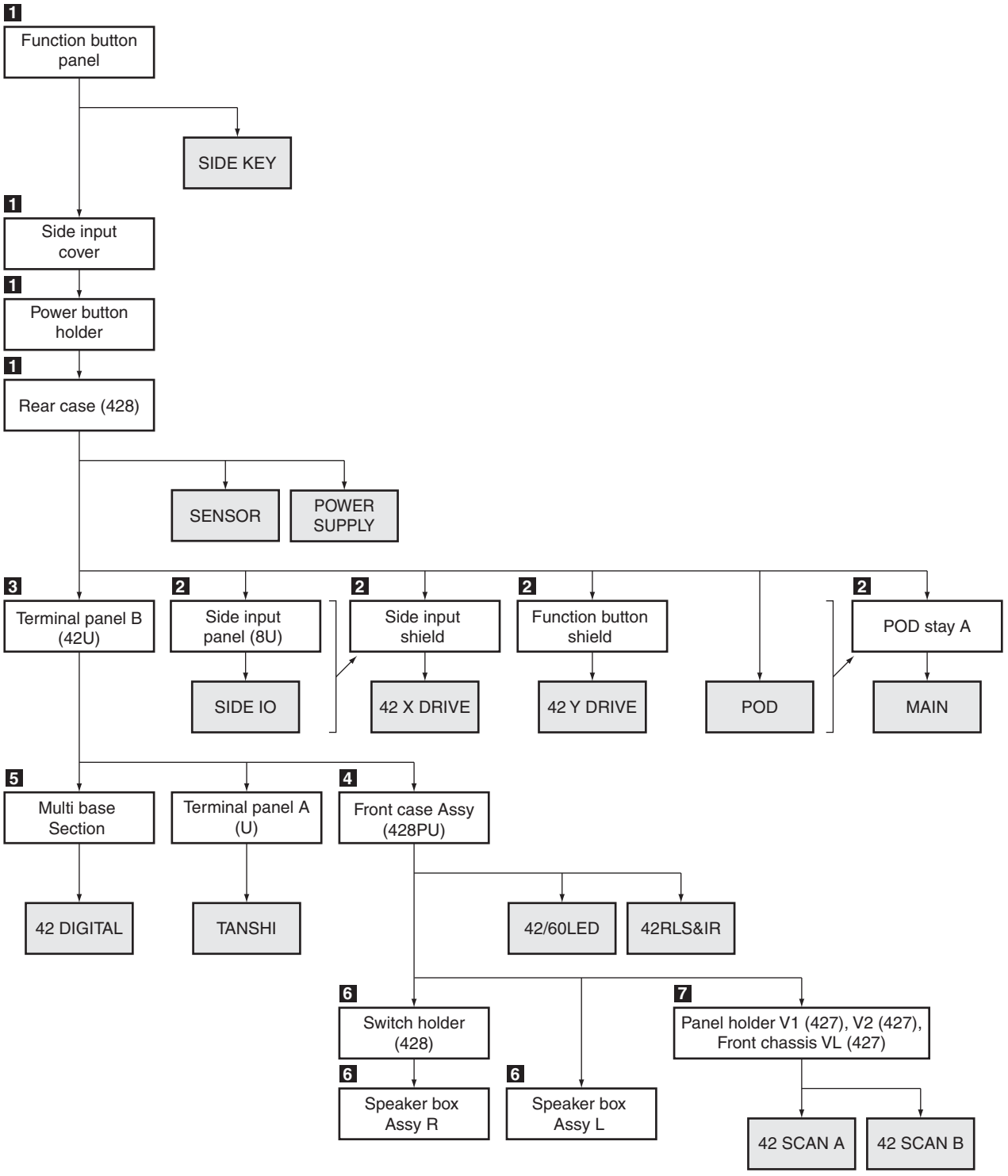
7. DISASSEMBLY

7.1 CHART OF REMOVAL ORDER FOR THE MAIN PARTS AND BOARDS

Note: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Chart of removal order for the main parts and boards

It is efficient to proceed with removal of the main parts and boards in the order shown in the chart below:



7.2 DISASSEMBLY

Disassembly

1 Rear Case (428)

● **Function button panel**

① Remove the two screws.

② Remove the function button panel.

● **Side input cover**

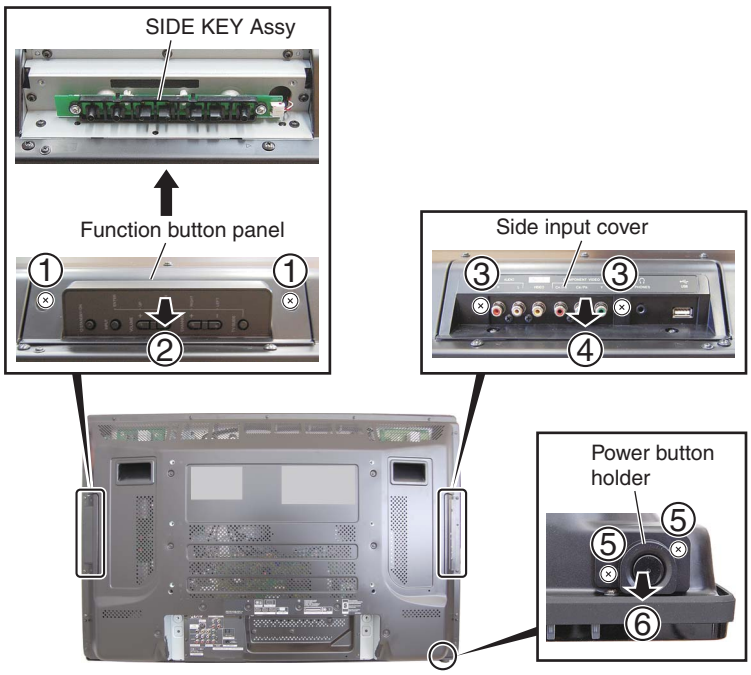
③ Remove the two screws.

④ Remove the side input cover.

● **Power button holder**

⑤ Remove the two screws.

⑥ Remove the power button holder.



● **Rear case (428)**

① Remove the two protect sheets C.

② Remove the 23 screws. (AMZ30P060FTB)

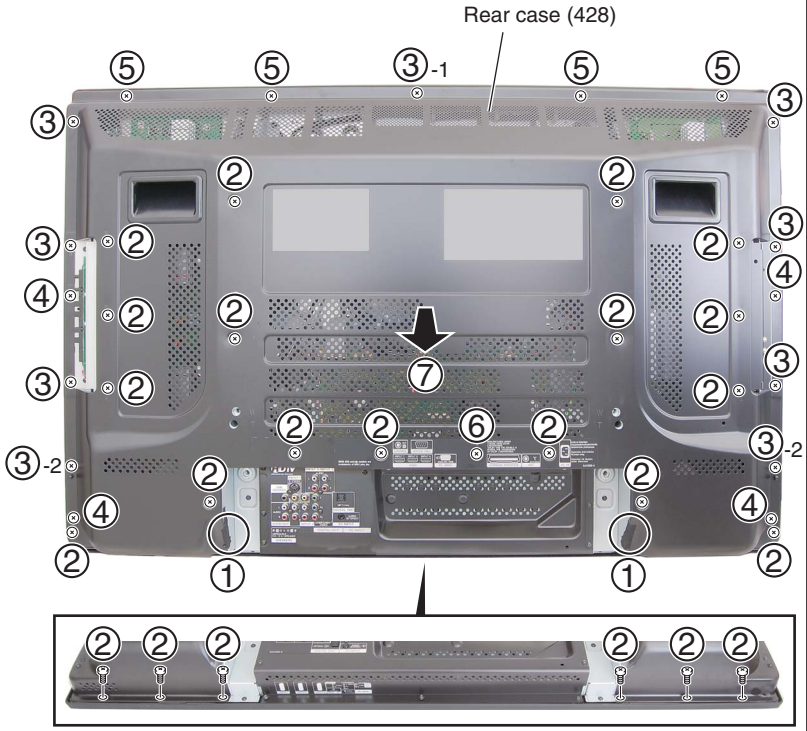
③ Remove the nine screws. (TBZ40P080FTB)

④ Remove the four screws. (ABA1332)

⑤ Remove the four screws. (BBZ40P160FTB)

⑥ Remove the one screw. (ABA1341)

⑦ Remove the rear case (428).



Tightening sequence for the screws when assembling

When assembling the Rear Case (428), tighten the screws in the following sequence:
1. Tighten the screw (③-1).
2. Tighten the two screws (③-2).
3. Tighten other screws.

PDP-4280HD

2 Access to PCB Assys

● SIDE IO Assy

① Remove the four screws.
② Remove the two screws.
③ Remove the four screws.
④ Remove the side input panel (8U).

● 42 X DRIVE Assy

① Remove the two screws.
② Remove the side input shield with PCB.
③ Diagnose the 42 X DRIVE Assy.

● 42 Y DRIVE Assy

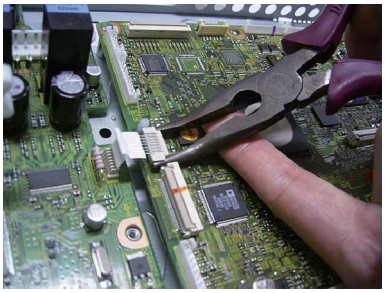
① Remove the two screws.
② Remove the function button shield with PCB.
③ Diagnose the 42 Y DRIVE Assy.

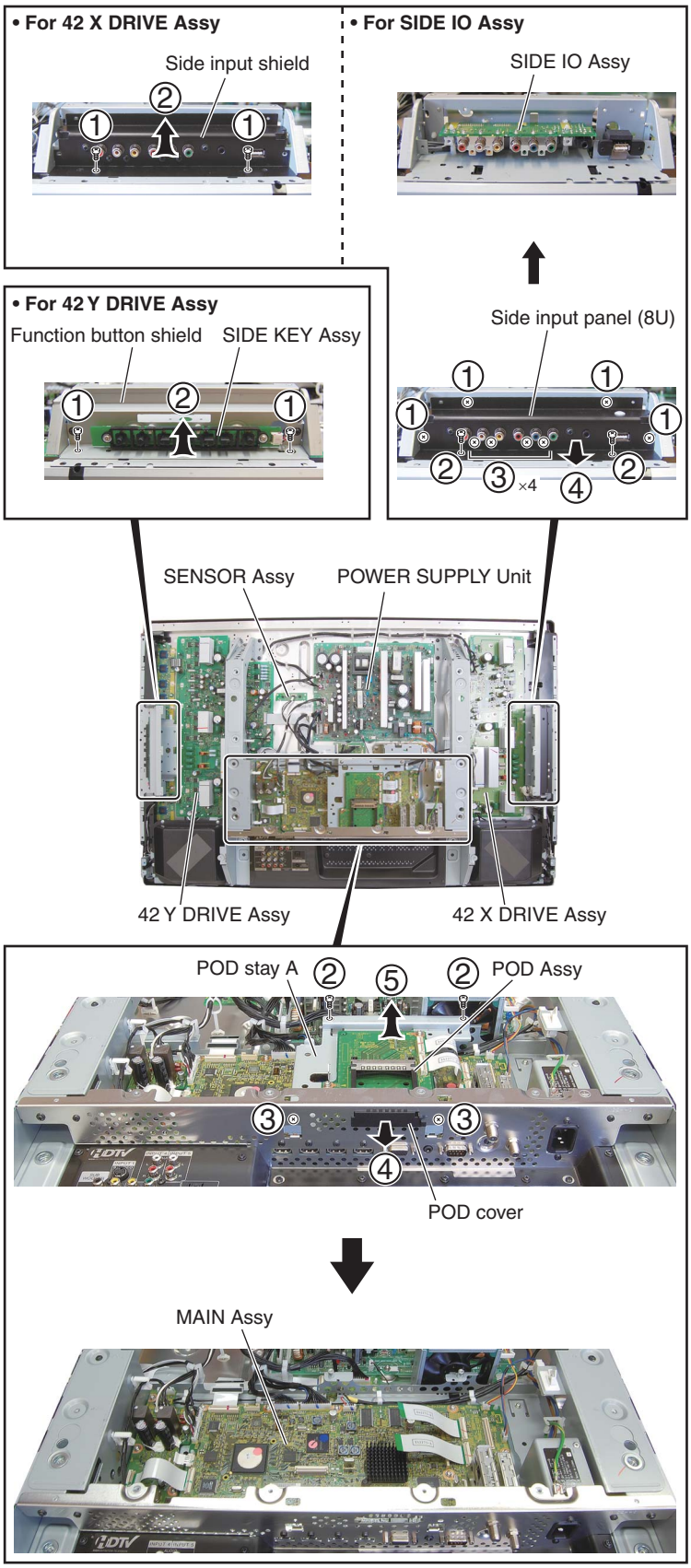
● MAIN Assy

① Disconnect cables, connectors, as required.
② Remove the two screws.
③ Remove the two screws.
④ Remove the POD cover.
⑤ Remove the POD stay A with PCB.

■ How to remove the bridge connector connecting between the MAIN and TANSHI Assys

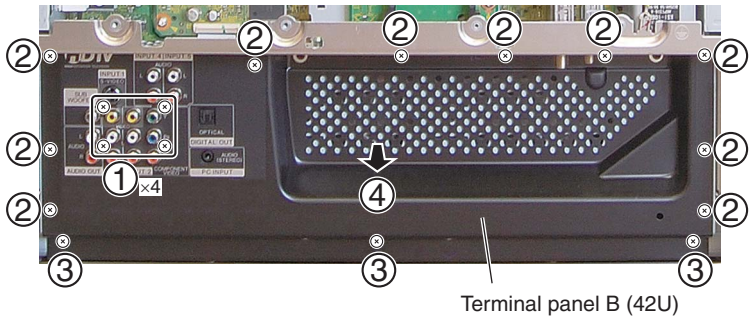
(1) Grip the two short edges of the connector with longnose pliers.
(2) Insert a finger between the longnose pliers and the board to protect the board and the mounted parts on the board from accidental damage by the pliers then, using your finger as a fulcrum and the pliers as a lever, pry the connector upward to remove it.



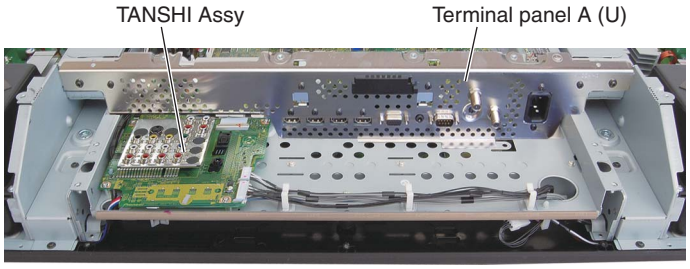


3 Terminal Panel B (42U)

① Remove the four screws.
② Remove the 10 screws.
③ Remove the three screws.
④ Remove the terminal panel B (42U).

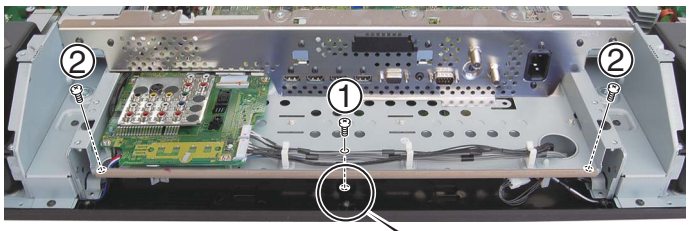


Note:
The wiring shown in the photo is different from the actual wiring, because the product in the photo is a prototype. Upon servicing, be sure to restore the original wiring of the unit after repair work.



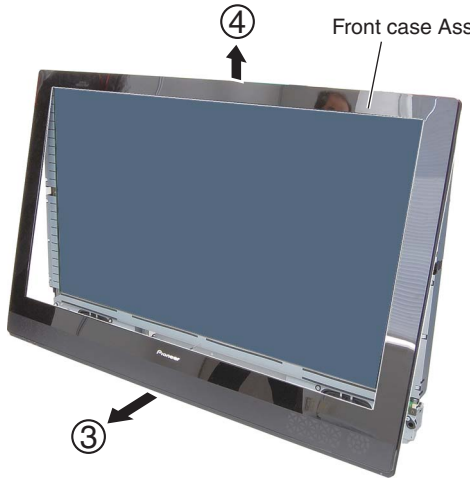
4 Front Case Assy (428PU)

① Remove the one screw.
② Remove the two screws.



Be sure not to lose the front collar.

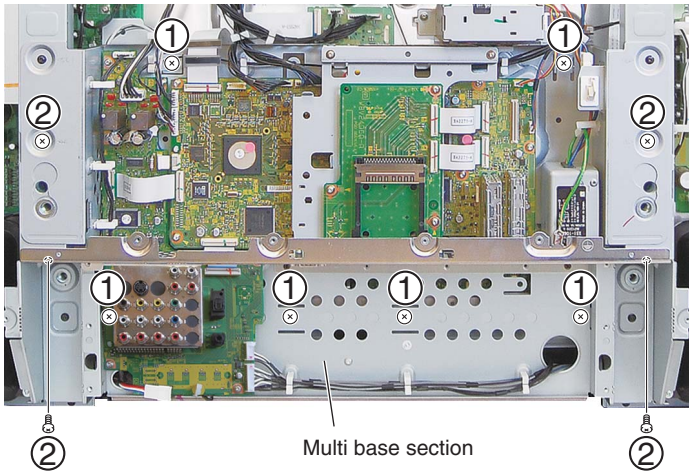
③ Pull the lower part of the Front case Assy(428PU) toward you and out.
④ Remove the Front case Assy (428PU), by pulling it upward.



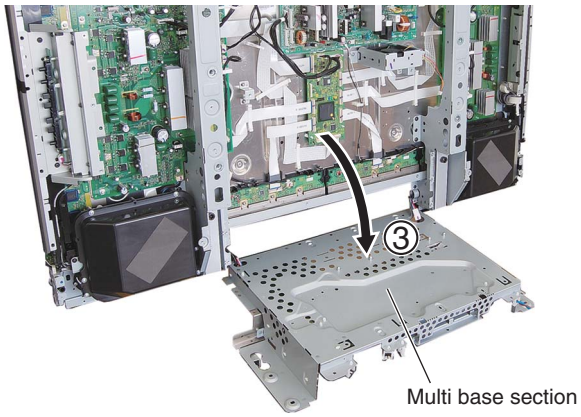
5 Access to 42 DIGITAL Assy

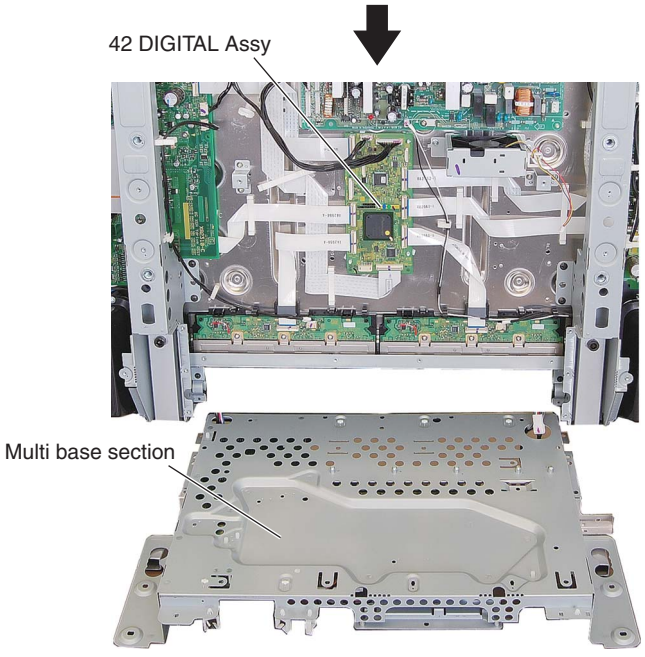
① Remove the six screws.

② Remove the four screws.



③ Lift the Multi base section to the direction of the arrow.





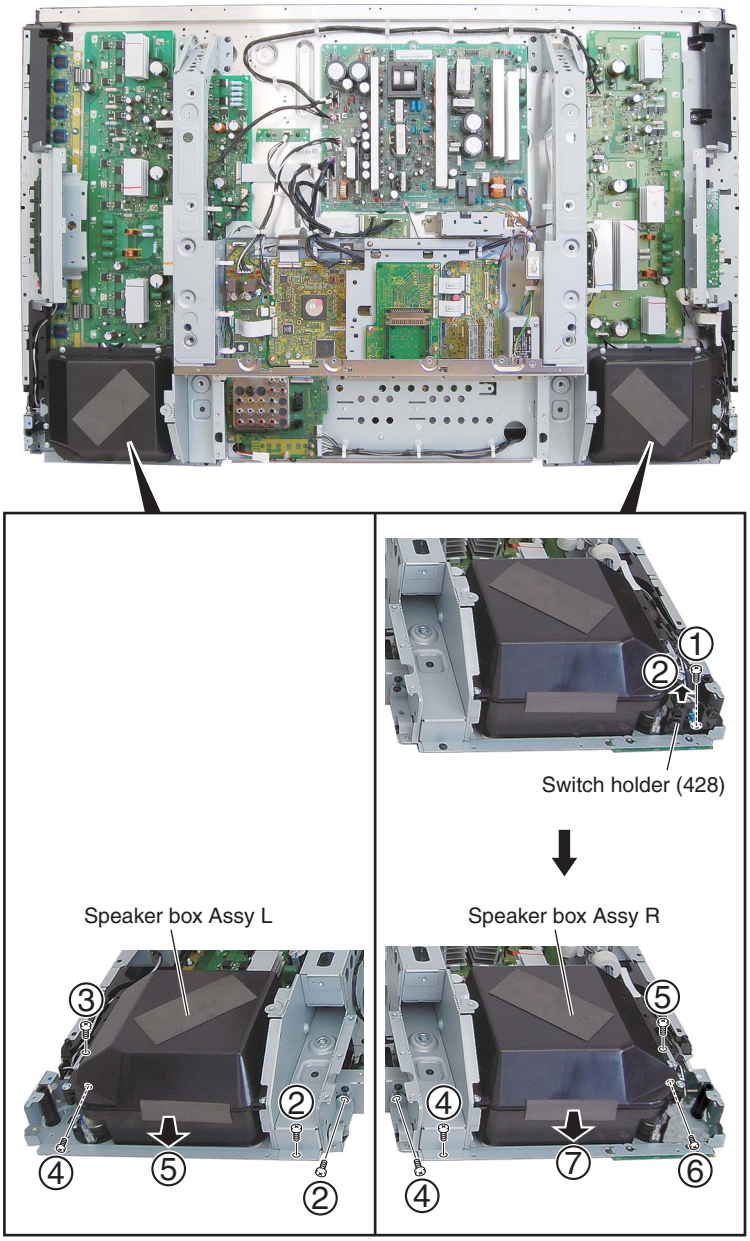
6 Speaker Box Assy L and R

● **Speaker Box Assy L**

① Disconnect cables, connectors, as required.
② Remove the two screws.
③ Remove the one screw.
④ Remove the one screw.
⑤ Remove the speaker box Assy L.

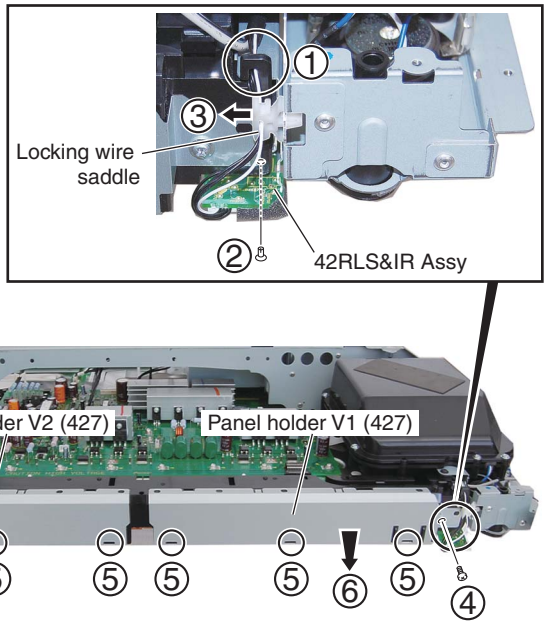
● **Speaker Box Assy R**

① Remove the one screw.
② Remove the switch holder (428).
③ Disconnect cables, connectors, as required.
④ Remove the two screws.
⑤ Remove the one screw.
⑥ Remove the one screw.
⑦ Remove the speaker box Assy R.

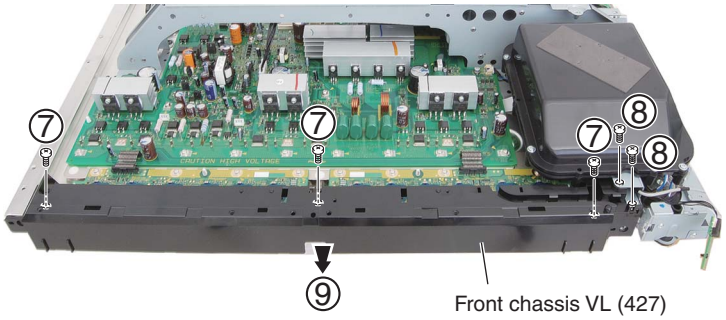


7 Exchange of SCAN IC

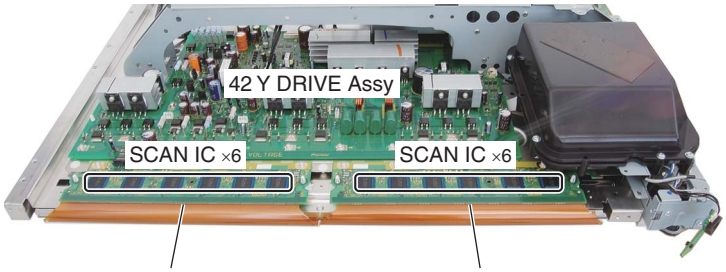
① Loosen the jumper wire.
② Remove the 42RLS&IR Assy by removing the one nyron rivet.
③ Remove the locking wire saddle.
④ Remove the two screws.
⑤ Unhook the six hooks.
⑥ Remove the panel holders V1 (427) and V2 (427).



⑦ Remove the three screws.
⑧ Remove the two screws.
⑨ Remove the front chassis VL (427).



Exchange



8. EACH SETTING AND ADJUSTMENT

1. At shipment, the unit is adjusted to its best conditions. Normally, it is not necessary to readjust even if an assembly is replaced. If the adjustment is shifted or if it becomes necessary to readjust because of part replacement, etc., perform the adjustment as described below.
2. Any value changed in Service/Factory mode will be stored in memory as soon as it is changed. Before readjustment, take note of the original values for reference in case you need to restore the original settings.
3. Use a stable AC power supply.

8.1 ADJUSTMENT REQUIRED WHEN THE UNIT IS REPAIRED OR REPLACED

■ When any of the following assemblies is replaced

POWER SUPPLY Unit	➡	Refer to “8.3 HOW TO CLEAR HISTORY DATA” and “8.6 PRECAUTION ON REPLACEMENT OF THE POWER SUPPLY UNIT”.
DIGITAL Assy	➡	Writing of backup data is required. Refer to the “8.2 BACKUP OF THE EEPROM (DIGITAL ASSY)”.
X DRIVE Assy	➡	No adjustment required
Y DRIVE Assy	➡	No adjustment required
Service Panel Assy	➡	Refer to “8.3 HOW TO CLEAR HISTORY DATA” and “8.4 ADJUSTMENTS WHEN THE SERVICE PANEL ASSY IS REPLACED”.
MAIN Assy (*)	➡	No adjustment required
SENSOR Assy	➡	Writing of backup data is required. Refer to the “8.2 BACKUP OF THE EEPROM (DIGITAL ASSY)”.
Other assemblies	➡	No adjustment required

Note: Checking the Cable Card ID

The PDP has a slot for a cable card that is used for managing your information by the cable TV company. The following procedure allows you to check your Cable Card ID and the Host ID.

1. Press HOME MENU.
2. Select “Tuner Setup”. (↑/↓ then ENTER)
3. Select “Channel Setup”. (←/→ then ENTER)
4. Select “POD ID”. (↑/↓)
   • The Host ID and Cable Card ID appear.
5. Press HOME MENU to exit the menu.

(*) : When replacing the MAIN Assy, be sure to perform the FINAL SETUP.

Notes on replacing parts

For the parts described in the list below, replacement is required for the whole Assy, not only the defective part.
If any part listed below is identified as defective and needs replacement, replace the whole Assy, and make necessary adjustments after replacement.

Reason: The whole Assy must be replaced, because adjustments and data rewriting for the Assy at the level of production line are required.

PCB Assy No.	Assy Name	Parts that Require Whole-Assy Replacement		
		Ref No.	Function Name	Part No.
AWV2455	MAIN Assy	IC4601	AV switch	R2S11006FT
		IC4701	RGB switch	R2S11001FT
		IC4703	EEPROM	BR24L01AFJ-W
		IC4801	MAIN VDEC	CM0048BF
		IC5001	A/D Converter	AD9985KSTZ-110
		IC5102	EEPROM	BR24L02FV-W
		IC5103	EEPROM	BR24L02FV-W
		IC5203	EEPROM	BR24L02FV-W
		IC8204	Flash ROM	AGC1049
		IC8301	Flash UCOM	AGC1037
		IC8602	Flash ROM	AGC1039
AWV2452, AWV2447	X DRIVE Assy	• Parts of X D-D CON BLOCK		
AWV1262, AWV1260	Y DRIVE Assy	• Parts of Y VF D-D CON BLOCK • Parts of Y MAIN D-D CON BLOCK 1 • Parts of Y MAIN D-D CON BLOCK 2		

POWER SUPPLY Unit	The assembly must be replaced as a unit, and no part replacement is allowed.
MAIN Assy	No adjustment is required after replacement of parts other than those mentioned above.
DIGITAL Assy	No adjustment is required after replacement of parts other than those mentioned above.
X DRIVE Assy	No adjustment is required after replacement of parts other than those shown in “8.5 ADJUSTMENTS WHEN THE DRIVE ASSYS ARE REPLACED.
Y DRIVE Assy	No adjustment is required after replacement of parts other than those shown in “8.5 ADJUSTMENTS WHEN THE DRIVE ASSYS ARE REPLACED.
ADDRESS Assy	No adjustment required
SENSOR Assy	No adjustment is required after replacement of parts other than those mentioned above.
TANSHI Assy	No adjustment required

8.2 BACKUP OF THE EEPROM (DIGITAL ASSY)

■ Outline

Adjustment data are stored in the EEPROM (IC3156/4K) on the DIGITAL Assy in the production process. Those adjustment data are also automatically stored in the EEPROM (for backup: IC3652) on the SENSOR Assy.
If the DIGITAL Assy is replaced, those adjustment data for backup can be copied from the EEPROM on the SENSOR Assy to a new DIGITAL Assy.

■ Backed up data

- Drive voltage adjustment value
- Hour-meter count
- Pulse-meter count
- Panel white balance adjustment value
- Serial No.
- Drive waveform adjustment value
- P-ON counter value
- PD/SD histories

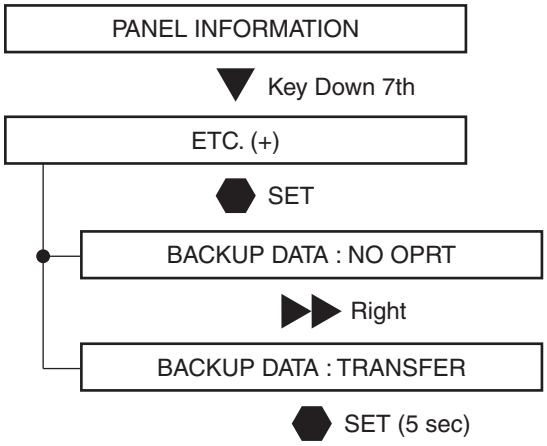
■ How to copy backup data

1. When the DIGITAL Assy is replaced with one for service (usual service)

Adjustment data can be restored by copying the data backed up in the SENSOR Assy to the EEPROM on a new DIGITAL Assy.
The EEPROM on the new DIGITAL Assy has no adjustment data, and the EEPROM for backup in the SENSOR Assy has adjustment data. After replacing the DIGITAL Assy, enter PANEL FACT. mode, display the PANEL INFORMATION page, then check if "NO DATA!" is set for "DIG. EEP" and "ADJUSTED" is set for "BACKUP". Then, proceed in the following steps:

(1) Copying, using the Factory menu

① Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
② Turn on the power, using the remote control unit, then enter Panel Factory mode.
Copy the backup data, as shown in the figure below.



③ Turn the power off.

- After the DIGITAL Assy is replaced with one for service, be sure to check if "NO DATA!" is set for "DIG. EEP" on the PANEL INFORMATION page of the PANEL FACT. mode.
- If copying of the backup data fails in the above procedure, the red LED lights, and the blue LED flashes, as a warning that no backup data were copied.
- If both the DIGITAL and SENSOR Assys are to be replaced, first replace the SENSOR Assy, turn the unit on and back off again, then replace the DIGITAL Assy.

(2) Copying, using the RS-232C commands

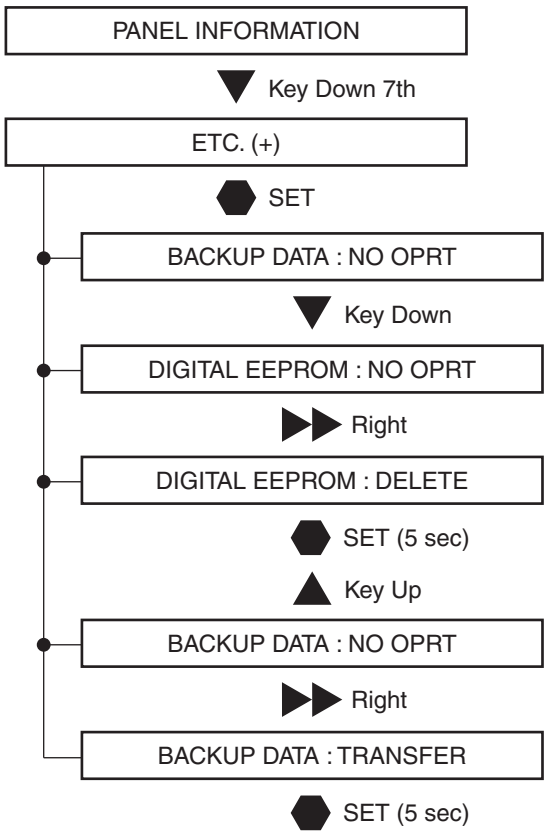
① Turn on the unit, using the remote control unit or by issuing the PON command. Then issue the FAY command.
② Issue the BCP command to transfer the data stored in the EEPROM for backup.
③ Turn the power off.

2. When a secondhand DIGITAL Assy that had been mounted in another product is to be reused

As adjustment data for another product are already stored in the secondhand DIGITAL Assy, first delete those data then copy the backup data stored in the EEPROM on the SENSOR Assy.

(1) Copying, using the Factory menu

① Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
② Turn on the power, using the remote control unit, then enter Panel Factory mode.
Copy the backup data, as shown in the figure below.



③ Turn the power off.

Note:
If the secondhand DIGITAL Assy is mounted in the product then the unit is turned on then back off again, the data in the EEPROM on the DIGITAL Assy are copied over the EEPROM in the SENSOR Assy. Thus the backup data can never be restored. During the first power-on after the DIGITAL Assy is replaced, be sure to enter Factory mode to copy the backup data. Or, before removing the secondhand DIGITAL Assy from the original product, delete the adjustment data on it, using the Factory mode (DIGITAL EEPROM: DELETE), mount it to the product to be repaired, then copy the data from the backup EEPROM.

(2) Copying, using the RS-232C commands

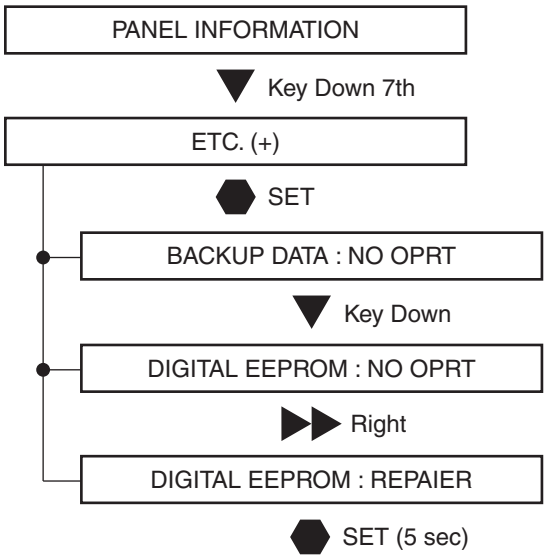
① Turn on the unit, using the remote control unit or by issuing the PON command. Then issue the FAY command.
② Issue the UAJ command to delete data stored in the EEPROM on the DIGITAL Assy.
③ Issue the BCP command to transfer the data stored in the EEPROM for backup.
④ Turn the power off.

3. In a case where normal backup data are not stored in the backup EEPROM because the EEPROM on the DIGITAL Assy is defective, etc., and where manually adjusted values are to be applied to the product

Note: In this section, it is assumed that settings for various items have been completed, using Factory menu or RS-232C commands.

(1) Method using the Factory menu

① Set various setting/adjustment values.
② Proceed in the following steps.



③ Turn the power off.

Note:
When a DIGITAL Assy with an EEPROM in which adjustment data are stored is mounted, this step is not required after manual adjustment. ("DIGITAL EEPROM: REPAIR" is not indicated.)

(2) Method using the RS-232C commands

Issue the FAJ command.

8.3 HOW TO CLEAR HISTORY DATA

■ Clearance of various logs after the Assys are replaced

Besides adjustment data, data on accumulated power-on time and logs on defective parts of the product are backed up. Some of those data must be cleared after the Assys are replaced for service.

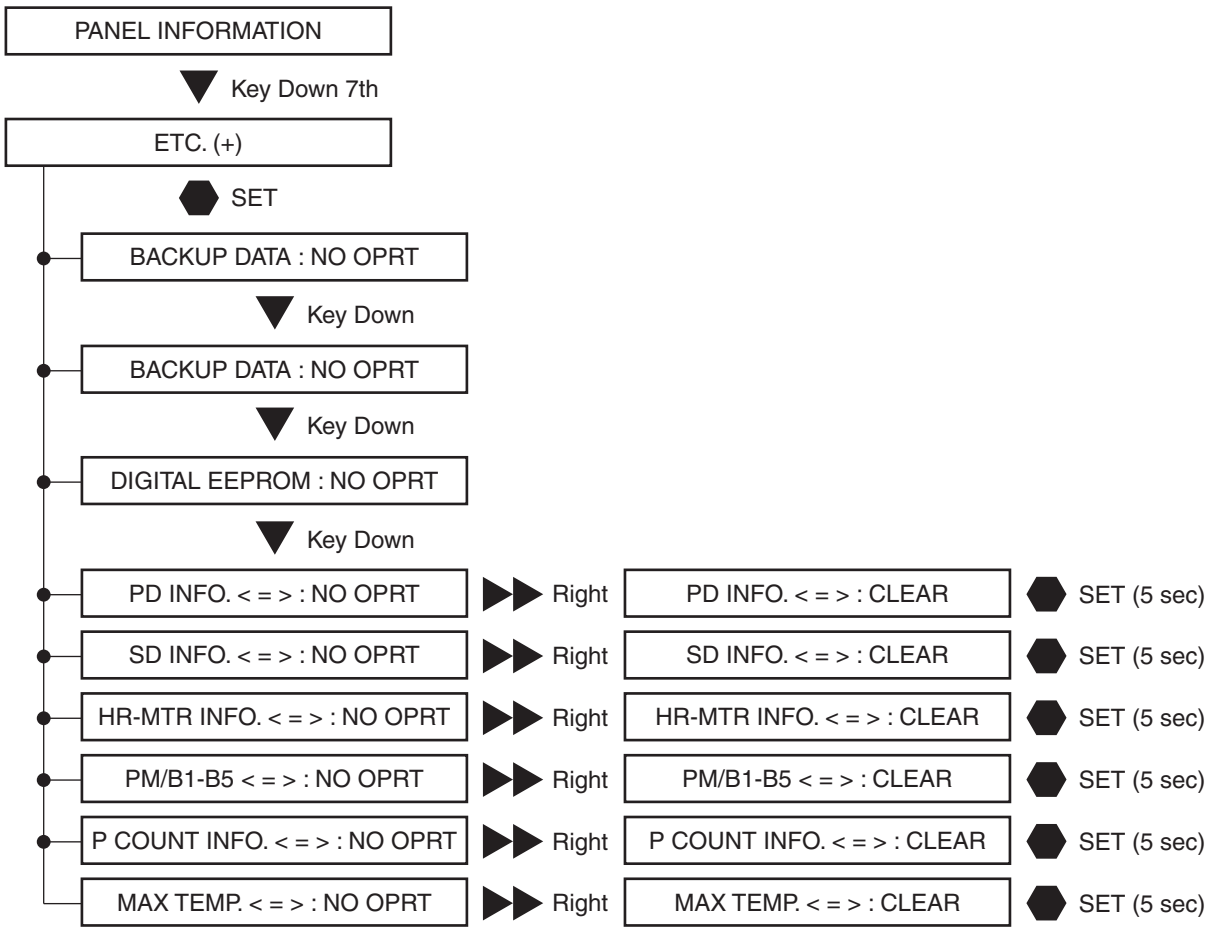
(1) Clearance of logs, using the RS-232C commands

Item	Content	When the Panel is replaced	When the POWER SUPPLY Unit is replaced	When the Other parts is replaced	RS-232C Commands
Hour-meter	Accumulated power-on time	Must be cleared	No need to be cleared	No need to be cleared	CHM
Pulse-meter	Accumulated number of pulses emitted	Must be cleared (mandatory)	No need to be cleared	No need to be cleared	CPM
Shutdown history	Cause of an SD and hour-meter count	Must be cleared	No need to be cleared	No need to be cleared	CSD
Power-down history	Cause of an PD and hour-meter count	Must be cleared	No need to be cleared	No need to be cleared	CPD
Power-on counter	Relay-on count	No need to be cleared	Must be cleared (mandatory)	No need to be cleared	CPC
MAX TEMP	Historical max. temperature	Must be cleared	Must be cleared	Must be cleared	CMT

Notes:
- As the pulse-meter count is used for each correction function, it must be cleared when an Assy relevant to correction functions is replaced.
- When clearing logs, using the RS-232C commands, first enter Factory mode (by issuing FAY or PFY), then issue the corresponding command.

(2) Clearance of logs, using the Factory menu

① Plug in the AC cord, press the Power switch on the unit to set it to ON, then enter Standby mode.
② Turn on the power, using the remote control unit, then enter Panel Factory mode.
Delete various logs, as shown in the figure below.



③ Turn the power off.

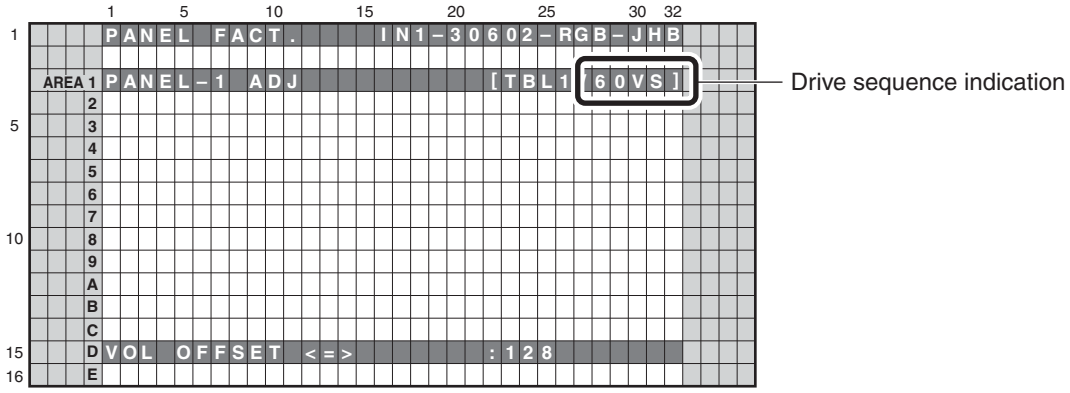
8.4 ADJUSTMENT WHEN THE SERVICE PANEL ASSY IS REPLACED

After the panel is replaced with one for service, voltage margin adjustment is required.

[Preparation]

Basically, voltage margin adjustment is performed using the Panel Factory menu.
After the panel is replaced and the unit is turned on, clear the pulse meter first.
For details on how to clear the pulse meter, see "8.3 HOW TO CLEAR HISTORY DATA".

∗1: As various corrections are made referring to the pulse-meter count to calculate how long the panel has been used, if adjustment of the panel for service is performed without clearing the pulse-meter count, proper adjustments will not be performed.
∗2: The drive sequence for 60-Hz video is used for adjustment. When adjustment is made using the Panel Factory menu, the current drive sequence is displayed on the screen, as shown in the figure below. Make sure that 60VS is always indicated during adjustment.



Example of the On-Screen display during Panel Factory mode

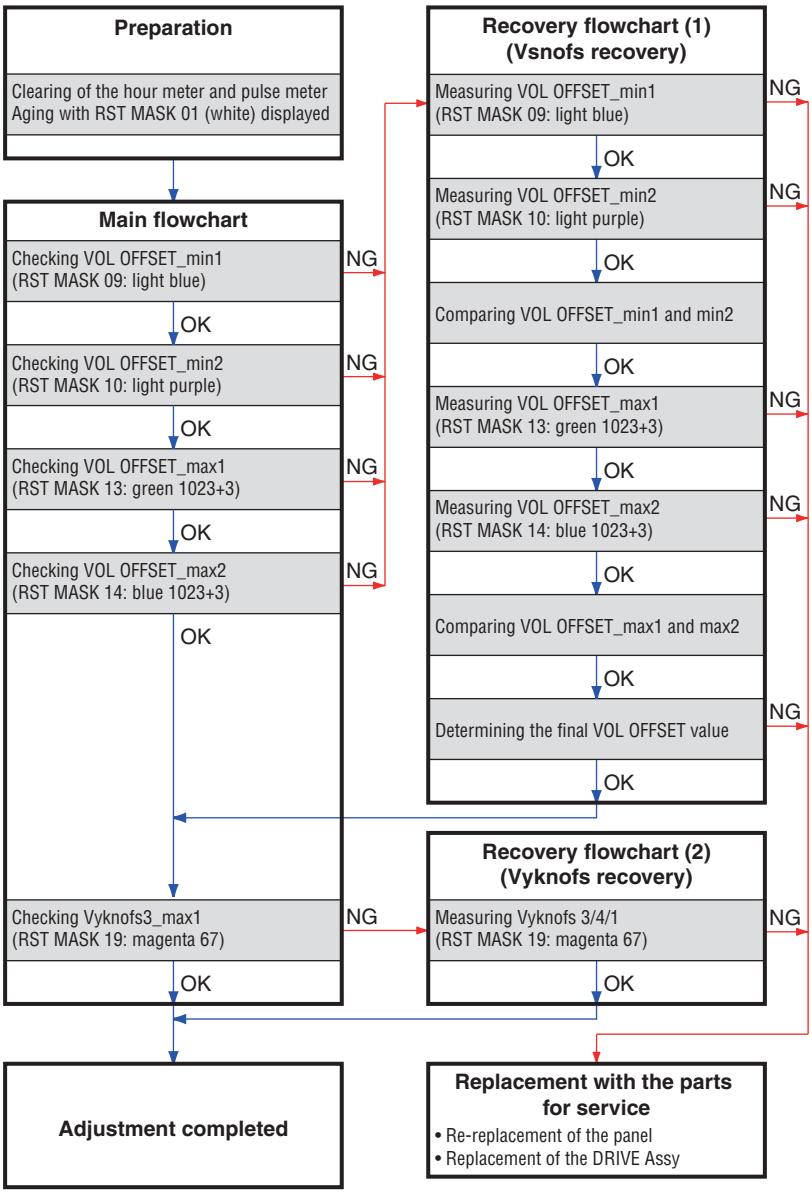
[Supplement]

In the "PANEL-1ADJ" layer, the Panel White Balance value is reset to default, Panel Gamma is set to Straight, and Noise is set to OFF.
In this case, "- - - - /∗∗∗∗" (∗∗∗∗ represents the current drive sequence) is displayed on the third line of the On-Screen display during Panel Factory mode.

If adjustment is performed using RS-232C commands, the following commands must be transmitted for preparation:
[PAV S00]: To set panel drive mode to Factory
[VFQ S03]: To set Drive Sequence to Video 60 Hz
[WBI S01]: To temporarily reset the Panel WB adjustment value to default (WBI S00 cancels this setting.)
[PGR S00]: To set the gamma R value to that for Factory mode
[PGG S00]: To set the gamma G value to that for Factory mode
[PGB S00]: To set the gamma B value to that for Factory mode
[DIZ S03]:Dither ON,L dither ON, noise OFF

∗: If the unit is shut down during the above adjustment flow, resend the above commands from the beginning.

Overview

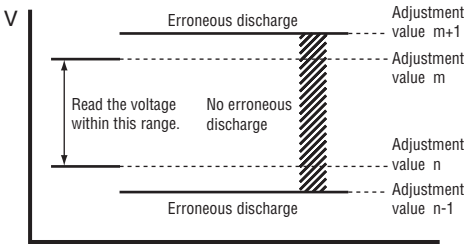


Note on voltage calculation

When calculating the setting voltage, round off to get rid of the fractional part.

Range of margin measuring

Read the voltage within the hysteresis (stricter value).



Definition of limits for the voltage margins (abnormal lit/dead cells)

Abnormal lit cells:

- Five or fewer abnormal cells on the whole screen
- Two or fewer abnormal cells within a radius of 1 cm

Abnormal dead cells

- Fifteen or fewer abnormal cells on the whole screen
- Two or fewer abnormal cells within a radius of 1 cm

*: Abnormal cells visually recognizable at a distance of 1 meter from the panel must be counted.
*: Cells displayed abnormally for less than one second are not counted as abnormal cells.

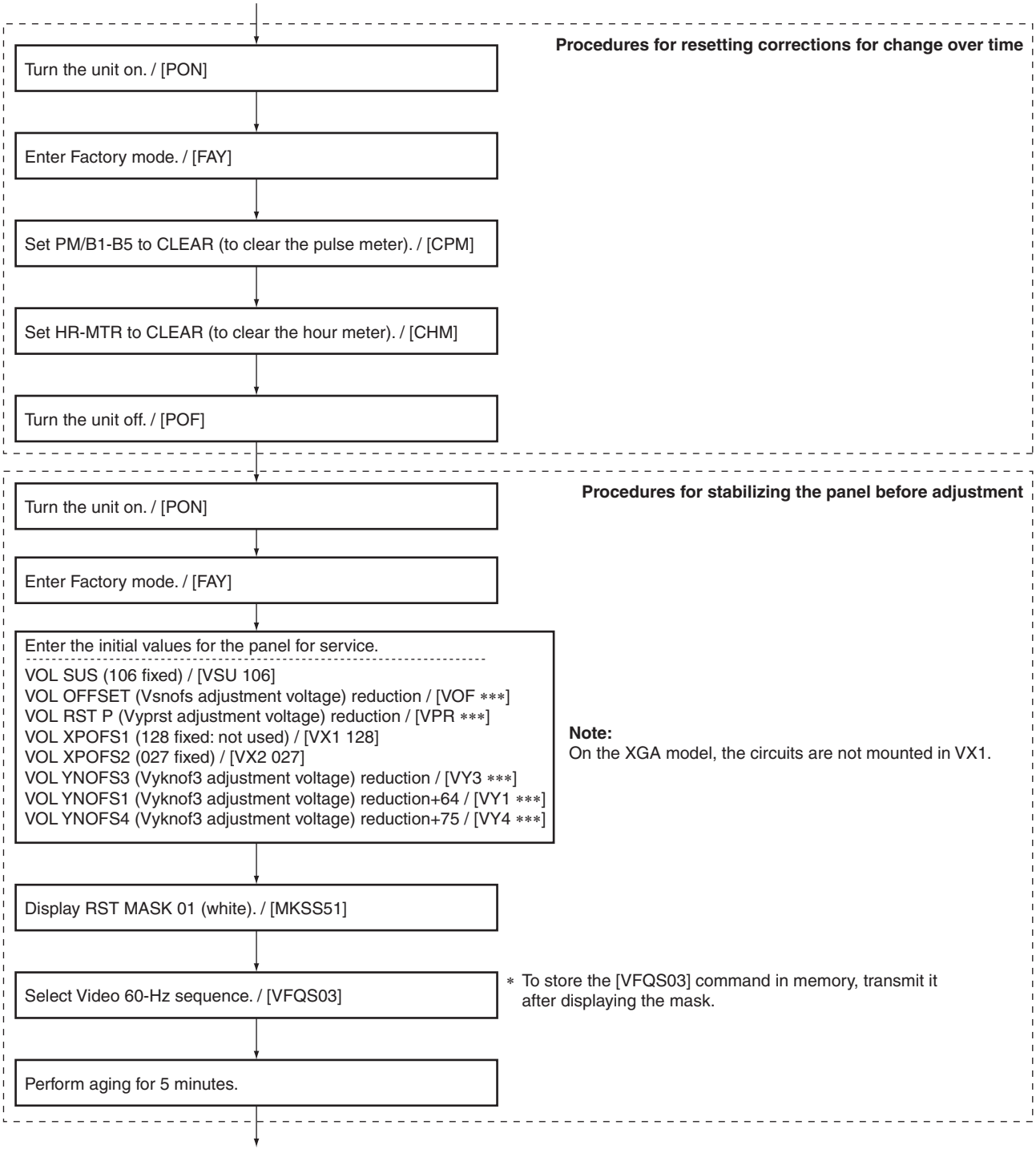
Definition of tones for the measuring signals

XGA signal (1024*768)/Video 60-Hz sequence/Dither: ON, L dither: ON, noise: OFF

White	RST MASK 01 (R 1023 /G 1023 /B 1023)
Light blue	RST MASK 09 (R 648 /G 1023 /B 1023)
Light purple	RST MASK 10 (R 1023 /G 648 /B 1023)
Green 1023+3	RST MASK 13 (R 137 /G 1023 /B 137)
Blue 1023+3	RST MASK 14 (R 137 /G 648 /B 1023)
Magenta 67	RST MASK 19 (R 67 /G 0 /B 67)

Preparation before adjustment

[Replacement with the panel for service is completed.]

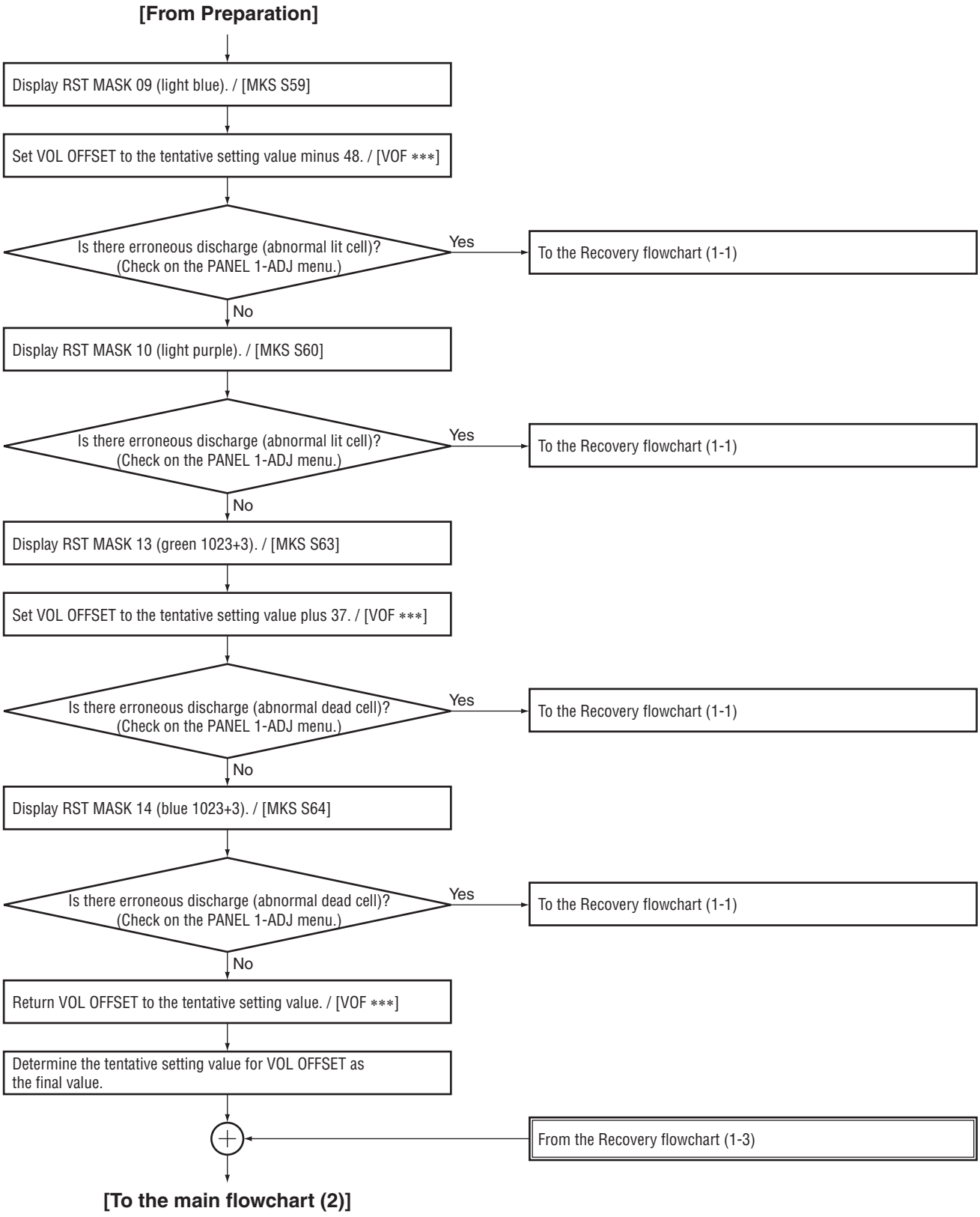

Procedures for resetting corrections for change over time
Turn the unit on. / [PON]
Enter Factory mode. / [FAY]
Set PM/B1-B5 to CLEAR (to clear the pulse meter). / [CPM]
Set HR-MTR to CLEAR (to clear the hour meter). / [CHM]
Turn the unit off. / [POF]
Procedures for stabilizing the panel before adjustment
Turn the unit on. / [PON]
Enter Factory mode. / [FAY]
Enter the initial values for the panel for service.
VOL SUS (106 fixed) / [VSU 106]
VOL OFFSET (Vsnofs adjustment voltage) reduction / [VOF ***]
VOL RST P (Vyprst adjustment voltage) reduction / [VPR ***]
VOL XPOFS1 (128 fixed: not used) / [VX1 128]
VOL XPOFS2 (027 fixed) / [VX2 027]
VOL YNOFS3 (Vyknof3 adjustment voltage) reduction / [VY3 ***]
VOL YNOFS1 (Vyknof3 adjustment voltage) reduction+64 / [VY1 ***]
VOL YNOFS4 (Vyknof3 adjustment voltage) reduction+75 / [VY4 ***]
Note:
On the XGA model, the circuits are not mounted in VX1.
Display RST MASK 01 (white). / [MKSS51]
Select Video 60-Hz sequence. / [VFQS03]
* To store the [VFQS03] command in memory, transmit it after displaying the mask.
Perform aging for 5 minutes.

[To the main flowchart (1)]

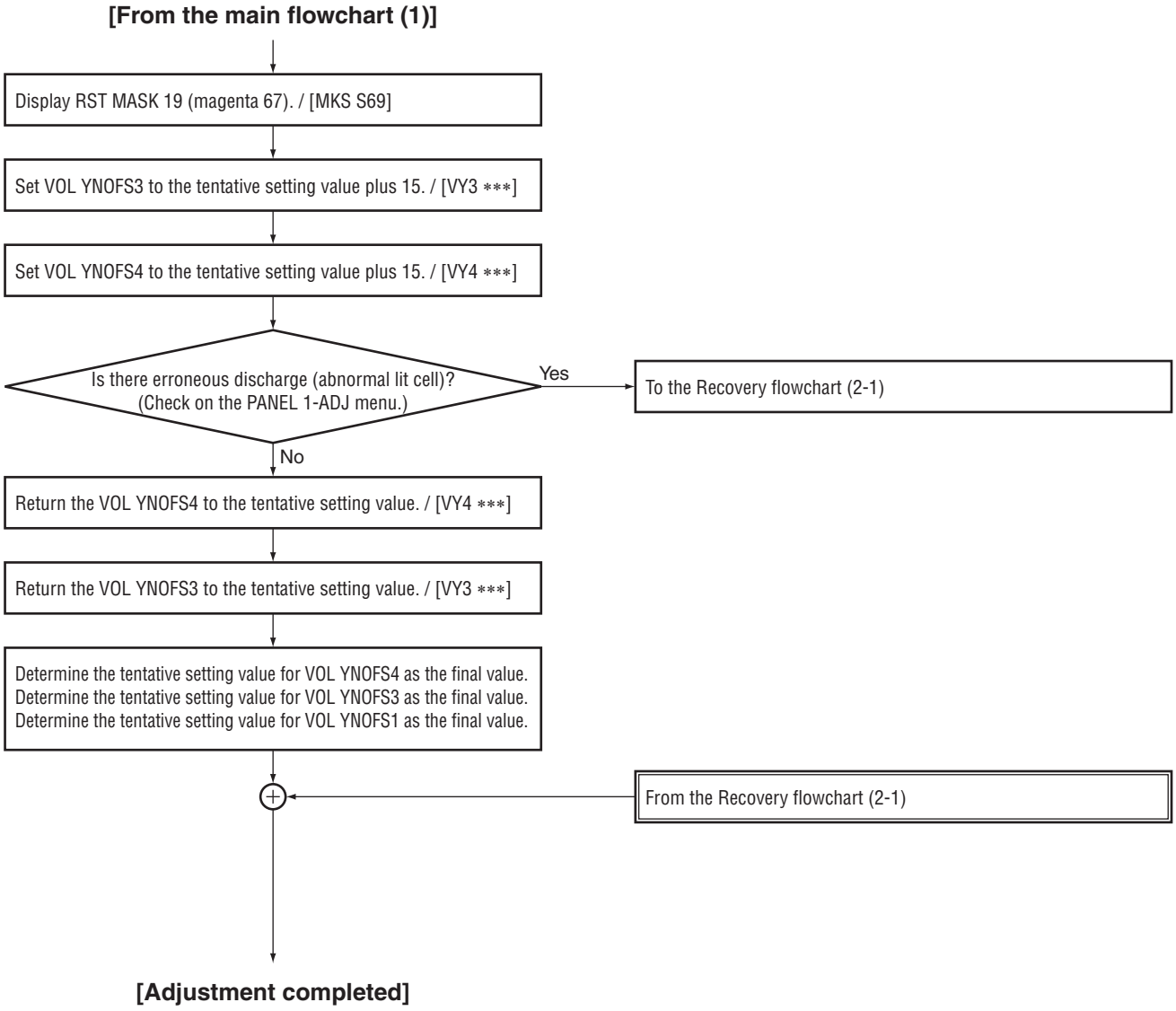
Note: If you perform the adjustment by RS-232C commands, the following commands must be added before going to the main flowchart (1):

[PAV S00]: To set panel drive mode to Factory
[WBI S01]: To temporarily reset the Panel WB adjustment value to default (WBI S00 cancels this setting.)
[PGR S00]: To set the gamma R value to that for Factory mode
[PGG S00]: To set the gamma G value to that for Factory mode
[PGB S00]: To set the gamma B value to that for Factory mode
[DIZ S03]:Dither ON,L dither ON, noise OFF

■ Main flowchart (1)...Checking VOL OFFSET


[From Preparation]
Display RST MASK 09 (light blue). / [MKS S59]
Set VOL OFFSET to the tentative setting value minus 48. / [VOF ***]
Is there erroneous discharge (abnormal lit cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (1-1)
No
Display RST MASK 10 (light purple). / [MKS S60]
Is there erroneous discharge (abnormal lit cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (1-1)
No
Display RST MASK 13 (green 1023+3). / [MKS S63]
Set VOL OFFSET to the tentative setting value plus 37. / [VOF ***]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (1-1)
No
Display RST MASK 14 (blue 1023+3). / [MKS S64]
Is there erroneous discharge (abnormal dead cell)? (Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (1-1)
No
Return VOL OFFSET to the tentative setting value. / [VOF ***]
Determine the tentative setting value for VOL OFFSET as the final value.
From the Recovery flowchart (1-3)
[To the main flowchart (2)]

■ Main flowchart (2)...Checking VOL YNOFS3


[From the main flowchart (1)]
Display RST MASK 19 (magenta 67). / [MKS S69]
Set VOL YNOFS3 to the tentative setting value plus 15. / [VY3 ***]
Set VOL YNOFS4 to the tentative setting value plus 15. / [VY4 ***]
Is there erroneous discharge (abnormal lit cell)?
(Check on the PANEL 1-ADJ menu.)
Yes
To the Recovery flowchart (2-1)
No
Return the VOL YNOFS4 to the tentative setting value. / [VY4 ***]
Return the VOL YNOFS3 to the tentative setting value. / [VY3 ***]
Determine the tentative setting value for VOL YNOFS4 as the final value.
Determine the tentative setting value for VOL YNOFS3 as the final value.
Determine the tentative setting value for VOL YNOFS1 as the final value.
From the Recovery flowchart (2-1)
[Adjustment completed]

Note: Make sure that the values for VOL SUS(*1), VOL OFFSET, VOL RST P(*1), VOL XPOFS1,2(*1) and VOL YNOFS1, 3, 4 are the final setting values.

*1: The tentative setting value becomes the final value.

■ Recovery flowchart (1-1)...Changing the Vol Offset setting voltage

Note: Disregard the discharge that may appear during voltage-change setting.

[From the main flowchart (1)]

Display RST MASK 09 (light blue). / [MKS S59]

∗ If RST MASK 09 (light blue) is already displayed, skip this step.

Set VOL OFFSET to the setting value 000. / [VOF 000]

Gradually increase the VOL OFFSET value until disappear the discharge (lit cell).
The VOL OFFSET value must be 245 or less.

∗ This setting becomes VOL OFFSET_min1.

VOL OFFSET_min1

Note:
Make a note of this VOL OFFSET_min1 value.

VOL OFFSET_min1 ≦ 155?

No → **Replacement of abnormal circuits or re-replacement of the panel required**

Yes

Display RST MASK 10 (light purple). / [MKS S60]

Set VOL OFFSET to the setting value 000. / [VOF 000]

Gradually increase the VOL OFFSET value until disappear the discharge (lit cell).
The VOL OFFSET value must be 245 or less.

∗ This setting becomes VOL OFFSET_min2.

VOL OFFSET_min2

Note:
Make a note of this VOL OFFSET_min2 value.

VOL OFFSET_min2 ≦ 155?

No → **Replacement of abnormal circuits or re-replacement of the panel required**

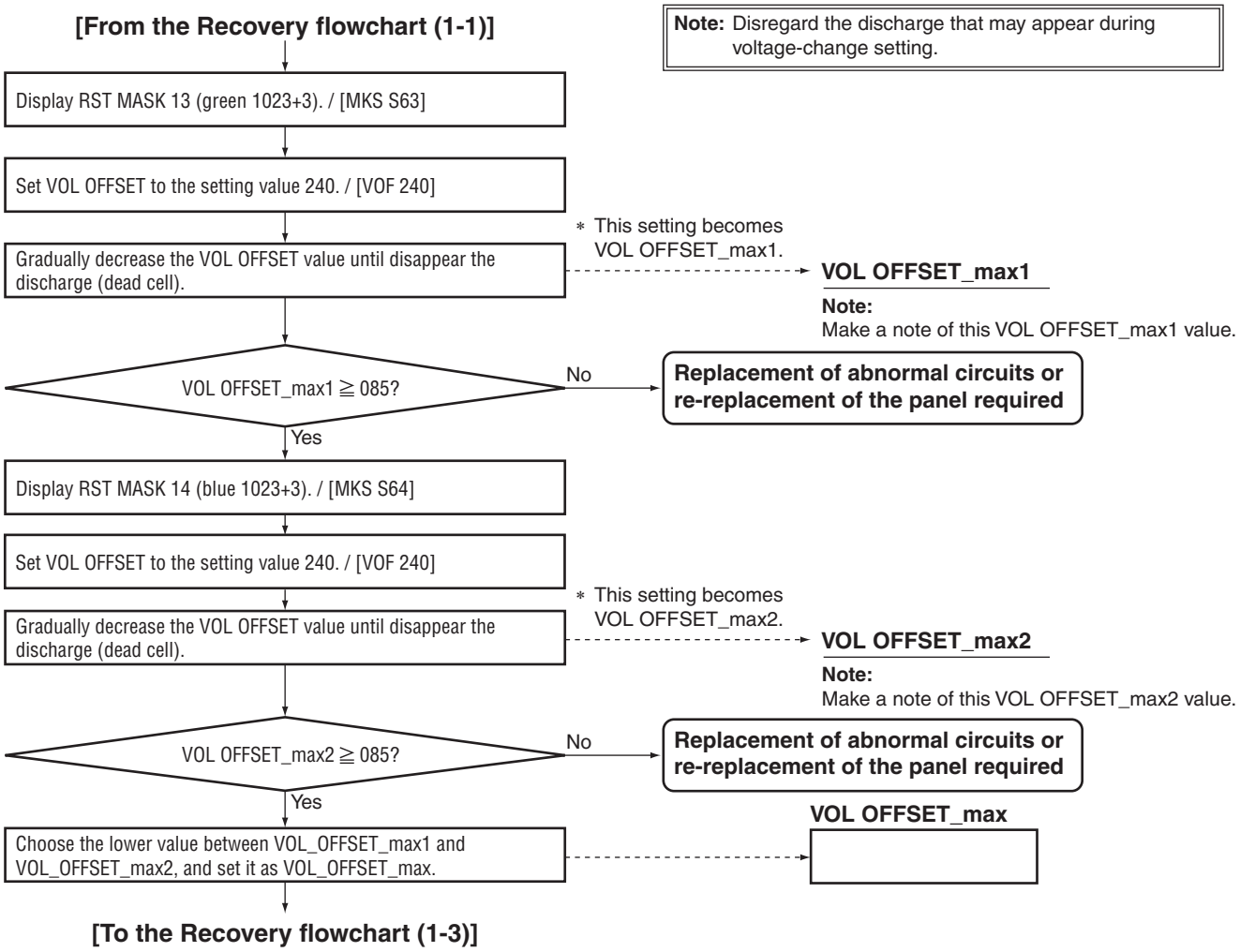
Yes

Choose the higher value between VOL_OFFSET_min1 and VOL_OFFSET_min2, and set it as VOL_OFFSET_min.

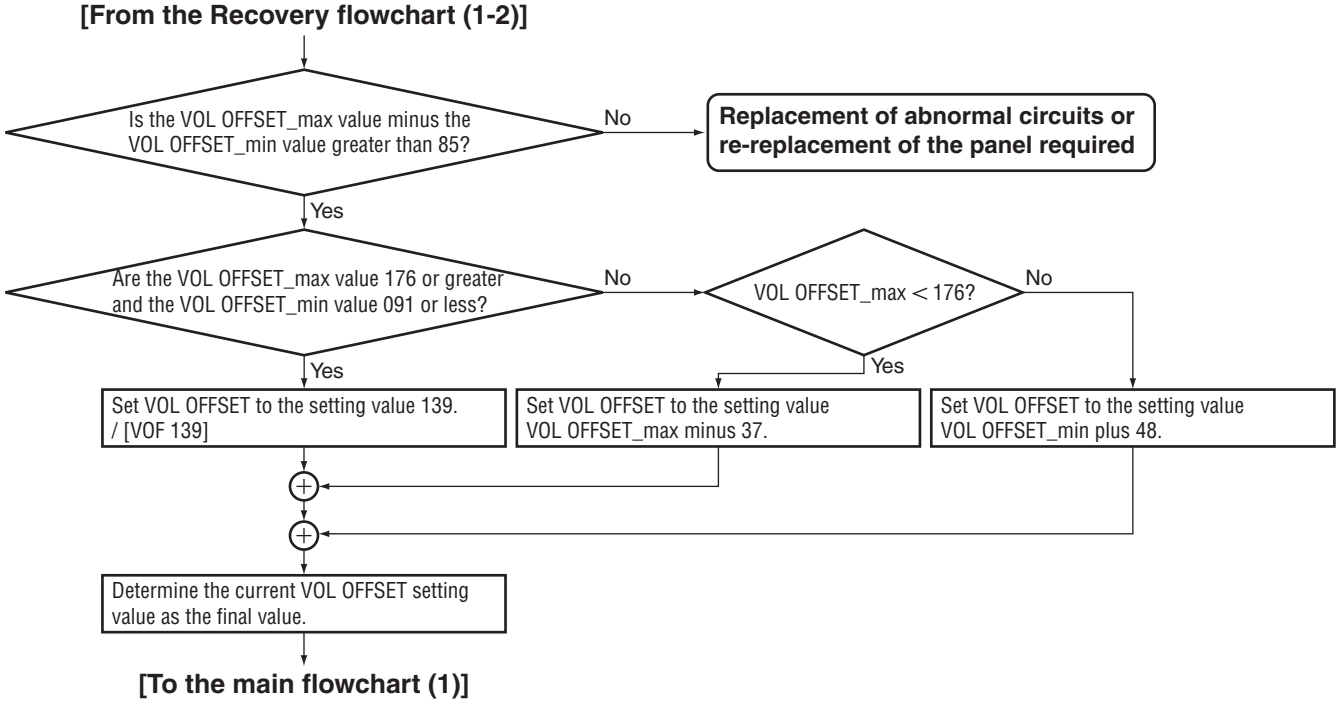
VOL OFFSET_min

[To the Recovery flowchart (1-2)]

Recovery flowchart (1-2)

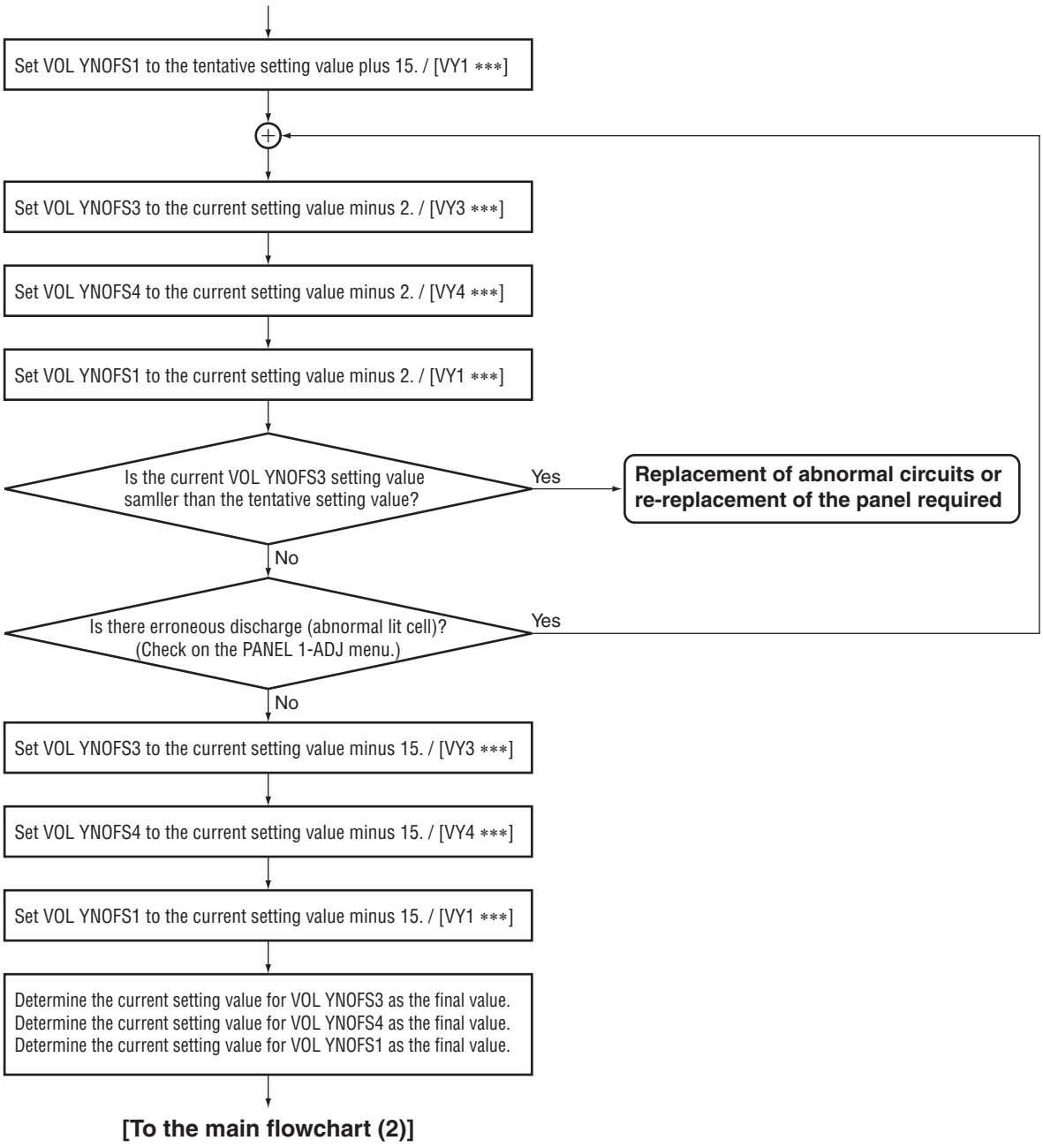

[From the Recovery flowchart (1-1)]
Note: Disregard the discharge that may appear during voltage-change setting.
Display RST MASK 13 (green 1023+3). / [MKS S63]
Set VOL OFFSET to the setting value 240. / [VOF 240]
Gradually decrease the VOL OFFSET value until disappear the discharge (dead cell).
* This setting becomes VOL OFFSET_max1.
VOL OFFSET_max1
Note:
Make a note of this VOL OFFSET_max1 value.
VOL OFFSET_max1 ≧ 085?
No
Replacement of abnormal circuits or re-replacement of the panel required
Yes
Display RST MASK 14 (blue 1023+3). / [MKS S64]
Set VOL OFFSET to the setting value 240. / [VOF 240]
Gradually decrease the VOL OFFSET value until disappear the discharge (dead cell).
* This setting becomes VOL OFFSET_max2.
VOL OFFSET_max2
Note:
Make a note of this VOL OFFSET_max2 value.
VOL OFFSET_max2 ≧ 085?
No
Replacement of abnormal circuits or re-replacement of the panel required
Yes
VOL OFFSET_max
Choose the lower value between VOL_OFFSET_max1 and VOL_OFFSET_max2, and set it as VOL_OFFSET_max.
[To the Recovery flowchart (1-3)]

Recovery flowchart (1-3)


[From the Recovery flowchart (1-2)]
Is the VOL OFFSET_max value minus the VOL OFFSET_min value greater than 85?
No
Replacement of abnormal circuits or re-replacement of the panel required
Yes
Are the VOL OFFSET_max value 176 or greater and the VOL OFFSET_min value 091 or less?
No
VOL OFFSET_max < 176?
No
Yes
Yes
Set VOL OFFSET to the setting value 139. / [VOF 139]
Set VOL OFFSET to the setting value VOL OFFSET_max minus 37.
Set VOL OFFSET to the setting value VOL OFFSET_min plus 48.
Determine the current VOL OFFSET setting value as the final value.
[To the main flowchart (1)]

Recovery flowchart (2-1)...Changing the VOL YNOFS3 setting voltage

Note: Disregard the discharge that may appear during voltage-change setting.


[From the main flowchart (2)]
Set VOL YNOFS1 to the tentative setting value plus 15. / [VY1 ***]
Set VOL YNOFS3 to the current setting value minus 2. / [VY3 ***]
Set VOL YNOFS4 to the current setting value minus 2. / [VY4 ***]
Set VOL YNOFS1 to the current setting value minus 2. / [VY1 ***]
Is the current VOL YNOFS3 setting value samller than the tentative setting value?
Yes
Replacement of abnormal circuits or re-replacement of the panel required
No
Is there erroneous discharge (abnormal lit cell)? (Check on the PANEL 1-ADJ menu.)
Yes
No
Set VOL YNOFS3 to the current setting value minus 15. / [VY3 ***]
Set VOL YNOFS4 to the current setting value minus 15. / [VY4 ***]
Set VOL YNOFS1 to the current setting value minus 15. / [VY1 ***]
Determine the current setting value for VOL YNOFS3 as the final value.
Determine the current setting value for VOL YNOFS4 as the final value.
Determine the current setting value for VOL YNOFS1 as the final value.
[To the main flowchart (2)]

Setting Voltages

VOF	
Vysnofs (V)	Value
14	000
15	005
16	011
17	016
18	021
19	027
20	032
21	037
22	043
23	048
24	053
25	059
26	064
27	069
28	075
29	080
30	085
31	091
32	096
33	101
34	107
35	112
36	117
37	123
38	128
39	133
40	139
41	144
42	149
43	155
44	160
45	165
46	171
47	176
48	181
49	187
50	192
51	197
52	203
53	208
54	213
55	219
56	224
57	229
58	235
59	240
60	245
61	251

VRP					
Vyprst (V)	Value	Vyprst (V)	Value	Vyprst (V)	Value
130	001	190	109	250	217
131	003	191	111	251	219
132	004	192	113	252	221
133	006	193	114	253	223
134	008	194	116	254	224
135	010	195	118	255	226
136	012	196	120	256	228
137	013	197	122	257	230
138	015	198	123	258	232
139	017	199	125	259	233
140	019	200	127	260	235
141	021	201	129	261	237
142	022	202	131	262	239
143	024	203	133	263	241
144	026	204	134	264	242
145	028	205	136	265	244
146	030	206	138	266	246
147	031	207	140	267	248
148	033	208	142	268	250
149	035	209	143	269	251
150	037	210	145	270	253
151	039	211	147	271	255
152	041	212	149		
153	042	213	150		
154	044	214	152		
155	046	215	154		
156	048	216	156		
157	050	217	158		
158	051	218	159		
159	053	219	161		
160	055	220	163		
161	057	221	165		
162	059	222	167		
163	060	223	169		
164	062	224	170		
165	064	225	172		
166	066	226	174		
167	068	227	176		
168	069	228	178		
169	071	229	179		
170	073	230	181		
171	075	231	183		
172	076	232	185		
173	078	233	187		
174	080	234	188		
175	082	235	190		
176	084	236	192		
177	086	237	194		
178	087	238	196		
179	089	239	197		
180	091	240	199		
181	093	241	201		
182	095	242	203		
183	096	243	205		
184	098	244	206		
185	100	245	208		
186	102	246	210		
187	104	247	212		
188	105	248	214		
189	107	249	215		

VY1			
Vyknofs1,2 (V)	Value	Vyknofs1,2 (V)	Value
151	001	211	129
152	003	212	131
153	005	213	133
154	008	214	136
155	010	215	138
156	012	216	140
157	014	217	142
158	016	218	144
159	018	219	146
160	020	220	148
161	022	221	150
162	025	222	153
163	027	223	155
164	029	224	157
165	031	225	159
166	033	226	161
167	035	227	163
168	037	228	165
169	040	229	168
170	042	230	170
171	044	231	172
172	046	232	174
173	048	233	176
174	050	234	178
175	052	235	180
176	054	236	182
177	057	237	185
178	059	238	187
179	061	239	189
180	063	240	191
181	065	241	193
182	067	242	195
183	069	243	197
184	072	244	200
185	074	245	202
186	076	246	204
187	078	247	206
188	080	248	208
189	082	249	210
190	084	250	212
191	086	251	214
192	089	252	217
193	091	253	219
194	093	254	221
195	095	255	223
196	097	256	225
197	099	257	227
198	101	258	229
199	104	259	232
200	106	260	234
201	108	261	236
202	110	262	238
203	112	263	240
204	114	264	242
205	116	265	244
206	118	266	246
207	121	267	249
208	123	268	251
209	125	269	253
210	127	270	255

VY3			
Vyknofs3 (V)	Value	Vyknofs3 (V)	Value
151	001	211	129
152	003	212	131
153	005	213	133
154	008	214	136
155	010	215	138
156	012	216	140
157	014	217	142
158	016	218	144
159	018	219	146
160	020	220	148
161	022	221	150
162	025	222	153
163	027	223	155
164	029	224	157
165	031	225	159
166	033	226	161
167	035	227	163
168	037	228	165
169	040	229	168
170	042	230	170
171	044	231	172
172	046	232	174
173	048	233	176
174	050	234	178
175	052	235	180
176	054	236	182
177	057	237	185
178	059	238	187
179	061	239	189
180	063	240	191
181	065	241	193
182	067	242	195
183	069	243	197
184	072	244	200
185	074	245	202
186	076	246	204
187	078	247	206
188	080	248	208
189	082	249	210
190	084	250	212
191	086	251	214
192	089	252	217
193	091	253	219
194	093	254	221
195	095	255	223
196	097	256	225
197	099	257	227
198	101	258	229
199	104	259	232
200	106	260	234
201	108	261	236
202	110	262	238
203	112	263	240
204	114	264	242
205	116	265	244
206	118	266	246
207	121	267	249
208	123	268	251
209	125	269	253
210	127	270	255

VY4			
Vyknofs4 (V)	Value	Vyknofs4 (V)	Value
151	001	211	129
152	003	212	131
153	005	213	133
154	008	214	136
155	010	215	138
156	012	216	140
157	014	217	142
158	016	218	144
159	018	219	146
160	020	220	148
161	022	221	150
162	025	222	153
163	027	223	155
164	029	224	157
165	031	225	159
166	033	226	161
167	035	227	163
168	037	228	165
169	040	229	168
170	042	230	170
171	044	231	172
172	046	232	174
173	048	233	176
174	050	234	178
175	052	235	180
176	054	236	182
177	057	237	185
178	059	238	187
179	061	239	189
180	063	240	191
181	065	241	193
182	067	242	195
183	069	243	197
184	072	244	200
185	074	245	202
186	076	246	204
187	078	247	206
188	080	248	208
189	082	249	210
190	084	250	212
191	086	251	214
192	089	252	217
193	091	253	219
194	093	254	221
195	095	255	223
196	097	256	225
197	099	257	227
198	101	258	229
199	104	259	232
200	106	260	234
201	108	261	236
202	110	262	238
203	112	263	240
204	114	264	242
205	116	265	244
206	118	266	246
207	121	267	249
208	123	268	251
209	125	269	253
210	127	270	255

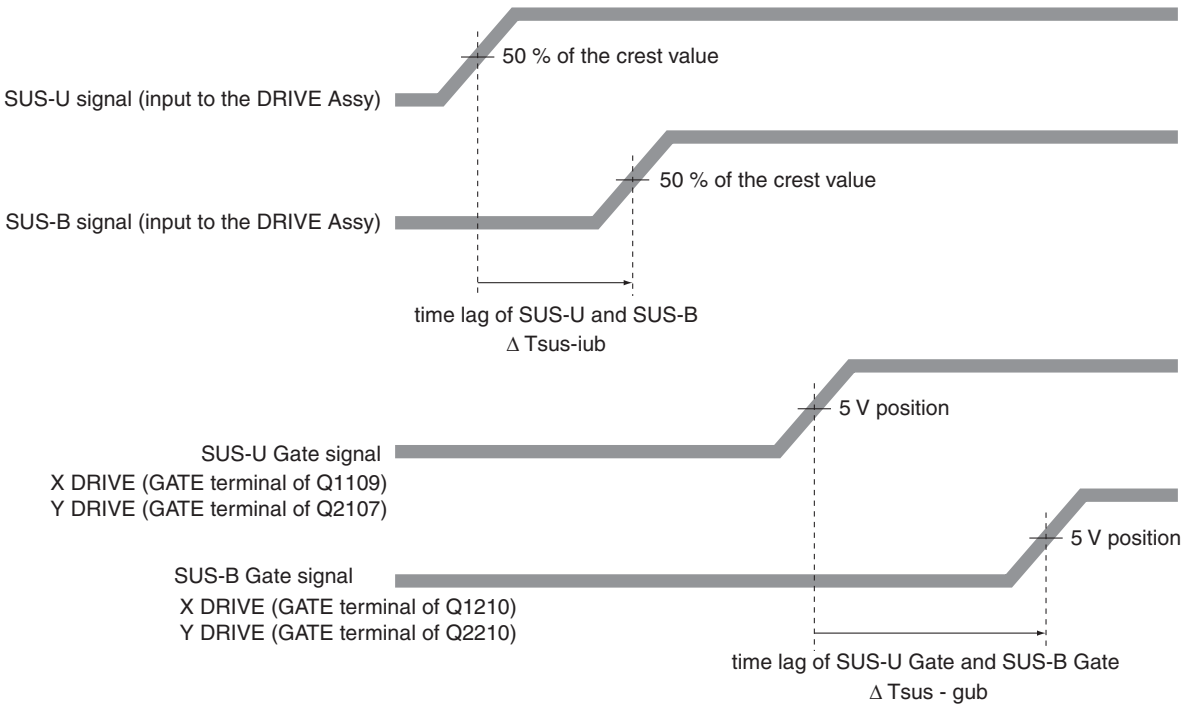
8.5 ADJUSTMENT WHEN THE DRIVE ASSYS ARE REPLACED

■ Waveform adjustments required when replacing the following parts of the X DRIVE and Y DRIVE Assys.

Assy Name	Ref No.	Part Name	Part Category	Remarks
X DRIVE Assy	IC1101	PS9117AP	Photo Coupler	
	IC1104	TND307TD	FET Driver	
	IC1204	PS9117AP	Photo Coupler	
	IC1209	TND307TD	FET Driver	
Y DRIVE Assy	IC2101	PS9117AP	Photo Coupler	
	IC2103	TND307TD	FET Driver	
	IC2201	PS9117AP	Photo Coupler	
	IC2203	TND307TD	FET Driver	

■ TIME LAG ADJUSTMENT OF THE CONTROL SIGNAL (SUS-B)

① Measure the time lag for the SUS-U signal to the SUS-B signal.
② Check the time lag for the SUS-B GATE signal to the SUS-U GATE siganl.
Adjust the variable control so that the time lag of GATE becomes " time lag of input signal + $\alpha \pm 5$ nsec."
Note: For details on measuring points of waveform, see the figure below.


50 % of the crest value
SUS-U signal (input to the DRIVE Assy)
50 % of the crest value
SUS-B signal (input to the DRIVE Assy)
time lag of SUS-U and SUS-B
Δ Tsus-iub
5 V position
SUS-U Gate signal
X DRIVE (GATE terminal of Q1109)
Y DRIVE (GATE terminal of Q2107)
5 V position
SUS-B Gate signal
X DRIVE (GATE terminal of Q1210)
Y DRIVE (GATE terminal of Q2210)
time lag of SUS-U Gate and SUS-B Gate
Δ Tsus - gub

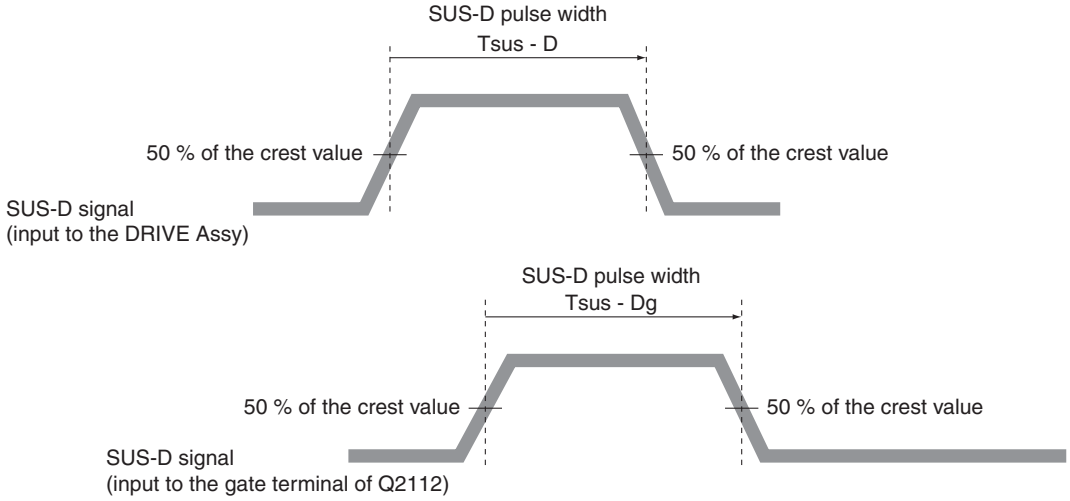
Time lag of SUS-U Gate and SUS-B Gate : Δ Tsus - gub
Adjust so that "Δ Tsus - gub = Δ Tsus - iub + $\alpha \pm 5$ nsec," using the variable controls shown in the table below:

Assy	VR	Value of α
X DRIVE Assy	VR1002	70 nsec
Y DRIVE Assy	VR2002	50 nsec

■ DELAY ADJUSTMENT OF THE CONTROL SIGNAL (SUS-D)

① Measure the pulse width of the SUS-D signal.
② Check the pulse width of the SUS-D input signal (gate terminal of Q2112).
Adjust the variable control so that the pulse width of the SUS-D input signal (gate terminal of Q2112) becomes the same pulse width ± 5 nsec as the SUS-D signal.

Note: For details on measuring points of waveform, see the figure below.

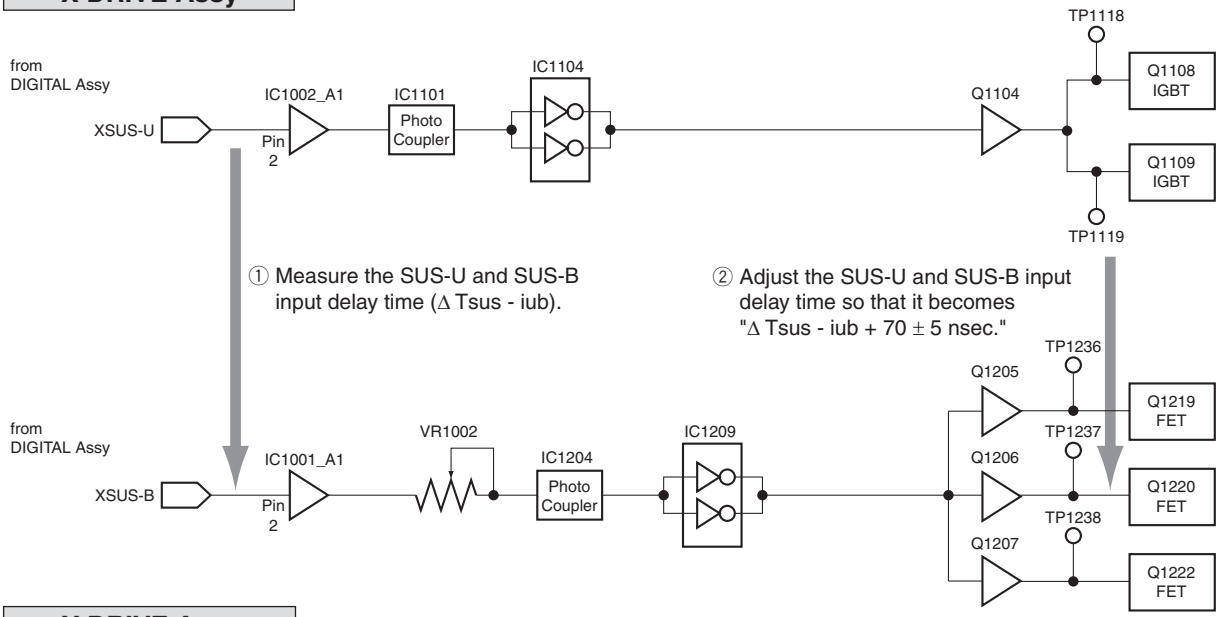

SUS-D pulse width
Tsus - D
50 % of the crest value
50 % of the crest value
SUS-D signal
(input to the DRIVE Assy)
SUS-D pulse width
Tsus - Dg
50 % of the crest value
50 % of the crest value
SUS-D signal
(input to the gate terminal of Q2112)

SUS-D pulse width: Tsus - Dg
Adjust so that "Tsus - Dg = Tsus - D ± 5 nsec," using the variable control shown in the table below:

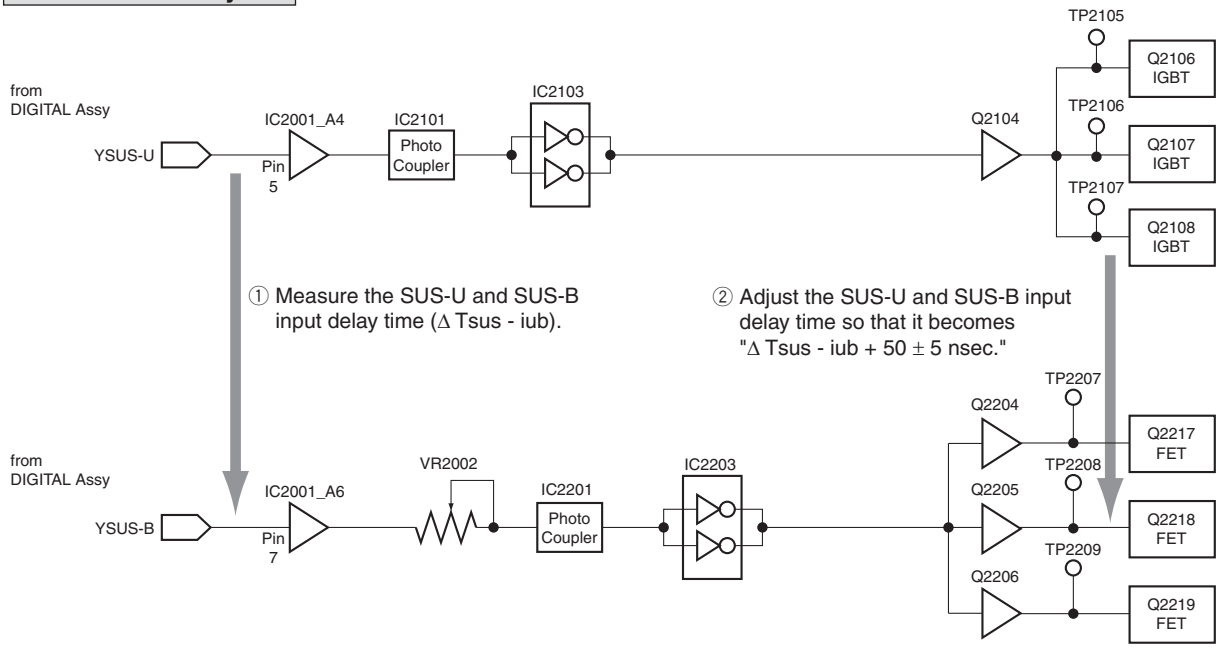
Assy	VR
Y DRIVE Assy	VR2001

■ SUS-B ADJUSTMENT

X DRIVE Assy

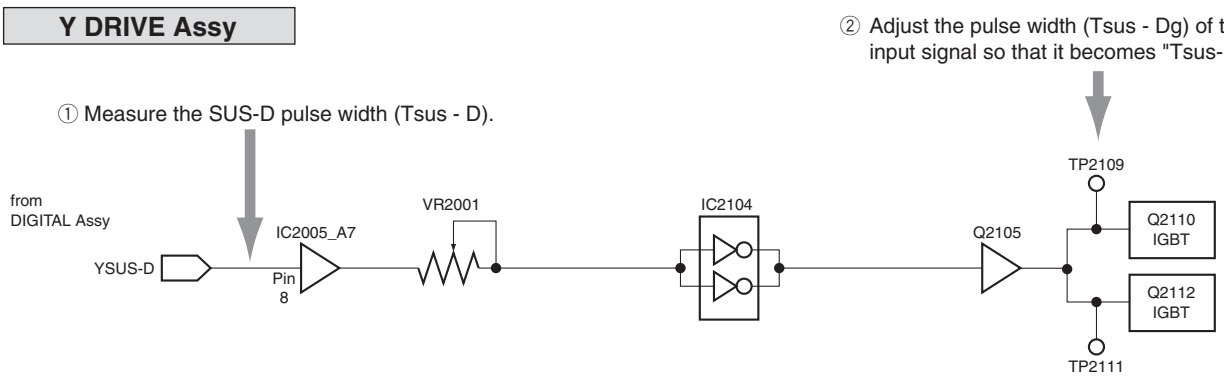


Y DRIVE Assy



■ SUS-D ADJUSTMENT

Y DRIVE Assy



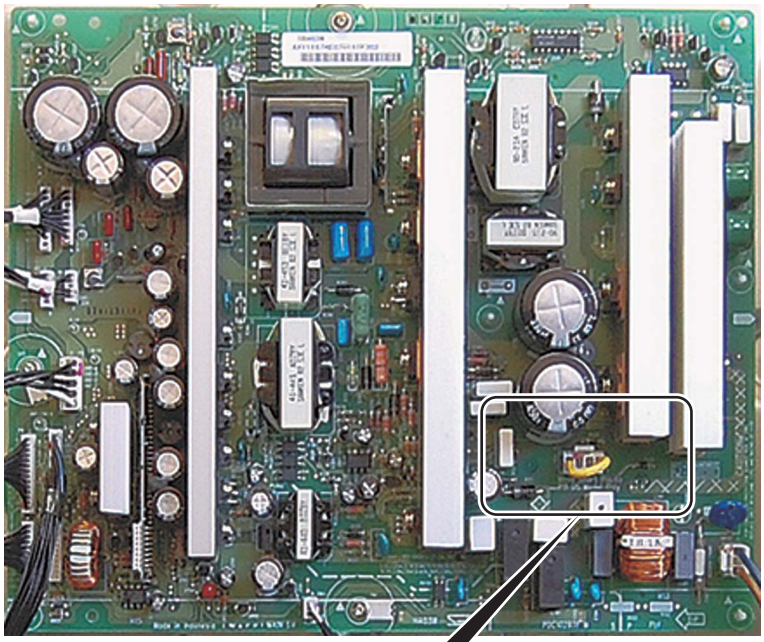
8.6 PRECAUTION ON REPLACEMENT OF THE POWER SUPPLY UNIT

■ Attachment of the housing wire

The housing wire (J126) is attached to the P11 terminal of the POWER SUPPLY unit. As the housing wire is not provided with the POWER SUPPLY unit for service, when replacing the POWER SUPPLY unit, remove the housing wire (J126) from the old one and attach it to the new one.
NEVER turn on the unit before replacement, as doing so may damage the PC boards or the product.

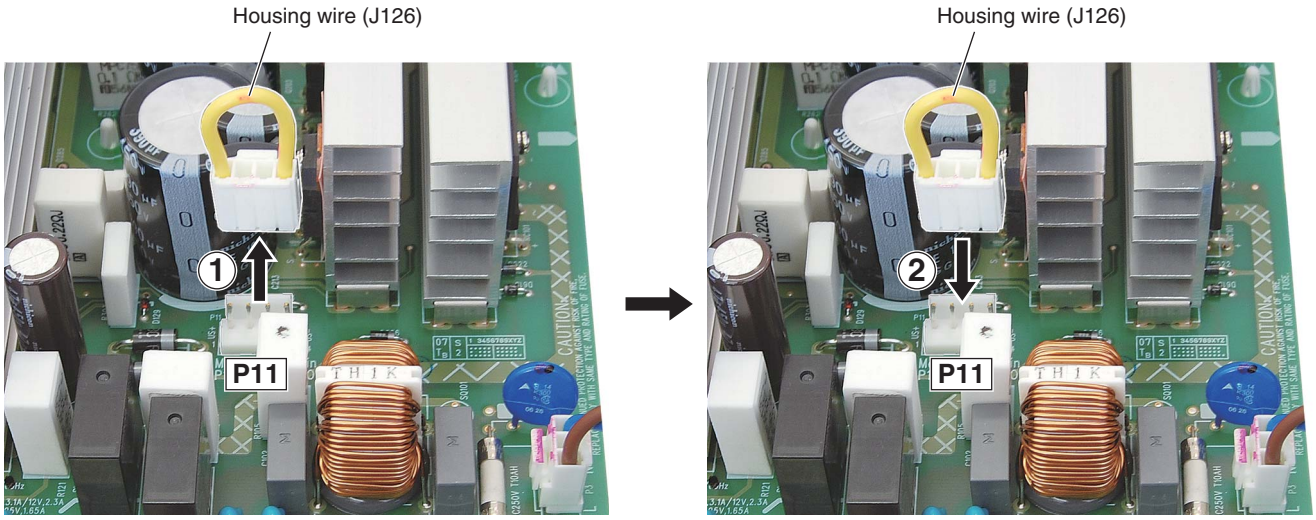
Note:
The wiring shown in the photo is different from the actual power supply unit, because the product in the photo is a prototype.

POWER SUPPLY unit



① Disconnect the housing wire (J126) from the P11 terminal on the old POWER SUPPLY Unit.

② Connect the housing wire (J126) to the P11 terminal on the new POWER SUPPLY Unit.



POWER SUPPLY unit **(old)**

POWER SUPPLY unit **(new)**

9. RS-232C

9.1 OUTLINE OF RS-232C COMMAND

9.1.1 PREPARED TOOLS

It is necessary to prepare the following one to use 232C command.

- PC
- Application for control
- 232C cable (straight)

∗ The setting of the Com port cannot be communicated if it doesn't do correctly.
(Please follow a set explanation of PC in the Com port)

9.1.2 USING RS-232C COMMANDS

Individual ports are provided for RS-232C and SR+ connectors with this model. Therefore, unlike the case of previous models, which required switching of exclusive operation between these connectors on the Integrator menu, switching is no longer required.

9.2 LIST OF RS-232C COMMANDS

RS-232C commands can be used in Service Factory mode. Before using RS-232C commands, it is necessary to change the factory presetting. See "9.1 OUTLINE OF RS-232C COMMAND".
[Note ; If you want to see version infomation (ex. QS1, QSE, Factory, Menu), Please see 10 seconds after starting.]

■ RS-232C command list

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
A							
ABL	***	Adjusting the upper limit of the power	●		Mod	●	
AMT	S00	Audio mute OFF		●			
	S01	Audio mute ON		●			
AP0	S**	ADDRESS L1, L2 setting	●		Mod	●	UP*/DN* is not effective
AP1	S**	ADDRESS L3, L4 setting	●		Mod	●	UP*/DN* is not effective
APN	***	1V average pulse number setting	●		Mod	●	UP*/DN* is not effective
APW	S00	APL interlocked function: OFF	●			●	
	S01	APL interlocked function: ON	●			●	
	S02	APL interlocked WB: ON / APL interlocked γ : OFF	●			●	
	S03	APL interlocked WB: OFF / APL interlocked γ : ON	●			●	
B							
BCP		Copying the backup data in the EEPROM	●			●	
BHI	***	User white balance : BLUE highlight	●				
BLW	***	User white balance : BLUE lowlight	●				
BRT	***	User brightness	●				
BSM	S00	After image/Burning safe mode: OFF	●				
	S01	After image/Burning safe mode: ON	●				
C							
CBU		Clearing backup data of EEPROM	●			●	
CHM		Clearing data of the hour meter	●			●	
CHN	FWD	Changing tuner preset channel (1 step forward)		●			
	REV	Changing tuner preset channel (1 step reverse)		●			
CHR		Clearing data of the hour meter of MTB side		●		●	
CNT	***	User contrast	●				
CMT		Clearing data of the maximum temperature	●			●	
CPC		Clearing power-on count data	●			●	
CPD		Clearing power-down histrory	●			●	
CPM		Clearing data of the pulse meter	●			●	
CSD		Clearing shutdown history	●			●	
CTM		Releasing the TRAP SW		●			
D							
DIZ	S00	Dither/L dither OFF & noise OFF	●			●	
	S01	Dither/L dither ON & noise ON	●			●	
	S02	Dither/L dither OFF & noise ON	●			●	
	S03	Dither/L dither ON & noise OFF	●			●	
DRV	S00	Panel drive-power OFF	●				
	S01	Panel drive-power ON	●				
DW*		To subtract *** to the adjustment value (*** = 000 to 999, designated by a function command)		●			
F							
FAJ		Determining the flag of the DIGITAL Assy adjustment in "adjustment is completed"	●			●	
FAN		Factory mode off	●	●		●	
FAY		Factory mode on	●	●			
FST		Set each memory setting of MTB side to the shipment state.		●		●	

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
G							
GHI	***	User white balance : GREEN highlight	●				
GLW	***	User white balance : GREEN low light	●				
I							
INA	***	Switching the terrestrial analog signal (ANTENNA A) (***: channel number)		●	Main		
	***** ****	Switching the terrestrial digital signal (ANTENNA A) (*********: channel number)		●	Main		
		Switching to the ANTENNA A		●	Main		
INB	***	Switching the terrestrial analog signal (ANTENNA B) (***:channel number)		●	Main		
		Switching to the ANTENNA B		●	Main		
INH		Switching the HomeGallery (Home Media Gallery for the ELITE model)		●			
INP	S01	Input switch: INPUT 1		●	Main		
	S02	Input switch: INPUT 2		●	Main		
	S03	Input switch: INPUT 3		●	Main		
	S04	Input switch: INPUT 4		●	Main		
	S05	Input switch: INPUT 5		●	Main		
	S06	Input switch: INPUT 6		●	Main		
	S07	Input switch: INPUT 7		●	Main		
	S08	Input switch: INPUT 8 (PC)		●	Main		
M							
MKC	S00	Panel mask indication off	●		Mod		
	S01	H ramp (slant 1) M	●		Mod	●	
	S02	H ramp (slant 4) M	●		Mod	●	
	S03	Slanting ramp M	●		Mod	●	
	S04	30 for aging	●		Mod	●	
	S05	05 for aging	●		Mod	●	
	S06	Erasing afterimage 1	●		Mod	●	
	S07	Erasing afterimage 2 (RGB: zigzag, V: reverse)	●		Mod	●	
	S08	White (change in luminance level)	●		Mod	●	
	S09	PEAK SEEK RASTER	●		Mod	●	
	S10	For engineering use	●		Mod	●	
	S11	Green vertical line scroll	●		Mod	●	
	S12	Green horizontal line scroll	●		Mod	●	
	S13	Vertical ramp vertical scroll (white)	●		Mod	●	
	S14	Vertical ramp vertical scroll (green)	●		Mod	●	
	S15	Horizontal ramp horizontal scroll (white)	●		Mod	●	
	S16	Horizontal ramp horizontal scroll (green)	●		Mod	●	
	S17	Cross hatch + window	●		Mod	●	
MKS	S00	MASK off	●		Mod		
	S01	H ramp (slant 1)	●		Mod	●	
	S02	H ramp (slant 4)	●		Mod	●	
	S03	V ramp (slant 1)	●		Mod	●	
	S04	Slanting ramp	●		Mod	●	
	S05	Window (Hi= 870, Lo= 102)	●		Mod	●	

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
M							
MKS	S06	Window (Hi= 1023, Lo= 102)	●		Mod	●	
	S07	Window (Hi= 1023, Lo=000)	●		Mod	●	
	S08	Window (Hi= 1023) 4 %	●		Mod	●	
	S09	Window (Hi= 1023) 1.25 %	●		Mod	●	
	S10	Window (1/7 LINE)	●		Mod	●	
	S11	STRIPE (MGT/GRN)	●		Mod	●	
	S12	STRIPE (GRN/MGT)	●		Mod	●	
	S13	B & W, checker (1 line)	●		Mod	●	
	S14	B & W, checker (2 lines)	●		Mod	●	
	S15	B & W, checker (4 lines)	●		Mod	●	
	S16	B & W, checker (8 lines)	●		Mod	●	
	S17	COLOR BAR	●		Mod	●	
	S18	Slanting lines	●		Mod	●	
	S19	Red & black, checker (1 line)	●		Mod	●	
	S20	Red & black, checker (2 lines)	●		Mod	●	
	S21	Red & black, checker (4 lines)	●		Mod	●	
	S22	Red & black, checker (8 lines)	●		Mod	●	
	S23	Erasing afterimage (RGB: zigzag, V: reverse)	●		Mod	●	
	S24	SUS 2000 pulses (black raster)	●		Mod	●	
	S25	1 for perfect linear	●		Mod	●	
	S26	2 for perfect linear	●		Mod	●	
	S27	3 for perfect linear	●		Mod	●	
	S28	4 for perfect linear	●		Mod	●	
	S29	RGB checker 1	●		Mod	●	
	S30	RGB checker 2	●		Mod	●	
	S31	Window RED (RED=1023)	●		Mod	●	
	S32	Window GREEN (GREEN=1023)	●		Mod	●	
	S33	Window BLUE (BLUE=1023)	●		Mod	●	
	S34	Even line horizontal stripes	●		Mod	●	
	S35	Odd line horizontal stripes	●		Mod	●	
	S36	Afterimage check 1	●		Mod	●	
	S37	Afterimage check 2	●		Mod	●	
	S38	Afterimage check 3	●		Mod	●	
	S39	Afterimage check 4	●		Mod	●	
	S40	Red single-color slanting ramp	●		Mod	●	
	S41	GREEN single-color slanting ramp	●		Mod	●	
	S42	BLUE single-color slanting ramp	●		Mod	●	
	S43	Black back acnode	●		Mod	●	
	S44	Horizontal stripes every eight white lines	●		Mod	●	
	S45	5 for perfect linear	●		Mod	●	
	S46	6 for perfect linear	●		Mod	●	
	S47	7 for perfect linear	●		Mod	●	
	S48	8 for perfect linear	●		Mod	●	
	S49	Mask for ABL adjustment	●		Mod	●	
	S51	Raster - White	●		Mod	●	
	S52	Raster - Red	●		Mod	●	
	S53	Raster - Green	●		Mod	●	
	S54	Raster - Blue	●		Mod	●	
	S55	Raster - Black	●		Mod	●	

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
MKS	S56	Raster - Cyan	●		Mod	●	
	S57	Raster - Magenta	●		Mod	●	
	S58	Raster - Yellow	●		Mod	●	
	S59	Raster - Light blue	●		Mod	●	
	S60	Raster - Pale purple	●		Mod	●	
	S61	Raster - Pale purple 2	●		Mod	●	
	S62	Raster - Red 1023+3	●		Mod	●	
	S63	Raster - Green 1023+3	●		Mod	●	
	S64	Raster - Blue 1023+3	●		Mod	●	
	S65	Raster - Red 179	●		Mod	●	
	S66	Raster - Green 179	●		Mod	●	
	S67	Raster - Blue 179	●		Mod	●	
	S68	Raster - Cyan 67	●		Mod	●	
	S69	Raster - Magenta 67	●		Mod	●	
	S70	Raster - Green 137	●		Mod	●	
	S71	Raster - Beige	●		Mod	●	
	S72	Raster - Blue 1023+	●		Mod	●	
	S73	Raster - Red 635	●		Mod	●	
	S74	Raster - Blue 635	●		Mod	●	
	S75	Raster - Gray 307	●		Mod	●	
MST	S00	Display one screen		●			
	S01	PsideP (Main size: normal)		●			
	S02	PinP (Right down)		●			
	S03	PinP (Right up)		●			
	S04	PinP (Left up)		●			
	S05	PinP (Left down)		●			
	S08	SWAP (Exchanging sub-screen)		●			
N							
NGP	S00	Negative positive inversion: OFF	●			●	
	S01	Negative positive inversion: ON	●			●	
O							
OSD	S00	Turning OSD setting to off		●	Main		
	S01	Turning OSD setting to on		●	Main		
P							
PAV	S**	Switching panel functions interlocked with the AV selection	●				
PBH	***	Panel white balance adjustment - Blue highlight	●		Mod	●	
PBL	***	Panel white balance adjustment - Blue low light	●		Mod	●	
PDM	S00	Passing PD signals to the POWER SUPPLY Unit => Power-down	●				
	S01	Not passing PD signals to the POWER SUPPLY Unit => No power-down	●				
PFL	S00	Peripheral luminance correction: OFF	●			●	
	S01	Peripheral luminance correction: ON fixed	●			●	
	S02	Peripheral luminance correction: APL interlocked ON	●			●	
PES	S00	Set the power consumption setting of the panel side to OFF	●				
	S01	Set the power consumption setting of the panel side to Energy saving 1	●				
	S02	Set the power consumption setting of the panel side to Energy saving 2	●				
PFN		Factory mode: off	●			●	
PFS		Setup at shipment	●			●	
PFY		Factory mode: on	●			●	
PGB	S**	Independent gamma Blue	●				
PGG	S**	Independent gamma Green	●				

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
P							
PGR	S**	Independent gamma Red	●				
PGH	***	Panel white balance adjustment - Green highlight	●		Mod	●	
PGL	***	Panel white balance adjustment - Green low light	●		Mod	●	
PMT	S00	Canceling panel muting	●				
	S01	Panel muting	●				
PKD	S00	Peak luminance detection: OFF	●			●	
	S01	Peak luminance detection: ON	●			●	
PKL	S**	Panel brightness setting	●				
POF		Power OFF	●	●	Main		
PON		Power on	●	●	Main		
PPT	S00	Panel protection: off	●			●	
	S01	Panel protection: on	●			●	
PRH	***	Panel white balance adjustment - Red highlight	●		Mod	●	
PRL	***	Panel white balance adjustment - Red low light	●		Mod	●	
PUC	S00	Pure cinema: off		●	Main	●	
	S01	Pure cinema: Standard		●	Main	●	
	S02	Pure cinema: Advance		●	Main	●	
	S03	Pure cinema: Smooth		●	Main	●	
Q							
QAJ		Acquiring various adjustment values	●				
QMT		Acquiring temperature of MTB side and Fan speed		●			
QNG		Acquiring shutdown information of MTB side		●			
QPD		Acquiring logs of power-down points	●				
QPM		Acquiring data of the pulse meter	●				
QPW		Acquiring panel white balance adjustment values	●				
QS1		Acquiring unit data, such as the software version common to all models, regardless of destination	●	●			
QS2		Acquiring data on the status of the unit, such as temperature	●				
QS3		Each information output for panel	●				
QSE		Acquiring unit data, such as the software version common to all models, regardless of destination		●			
QSD		Acquiring data on shutdown	●				
QSI		Acquiring data related with signals	●				
QSP		Acquiring the software sub-version of the microcomputer at panel side	●				
R							
RBL	S**	Setting of blue level for panel degradation correction	●		Mod	●	
RGL	S**	Setting of green level for panel degradation correction	●		Mod	●	
RHI	***	User white balance - Red highlight	●				
RLS	S**	Room light sensor operation at panel side	●				
RLW	***	User white balance - Red low light	●				
RRL	S**	Setting of red level for panel degradation correction	●		Mod	●	
R1K	***	RESET1ST_KSB adjustment	●		Mod	●	UP*/DN* is not effective
R2K	***	RESET2ND_KSB adjustment	●		Mod	●	UP*/DN* is not effective

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
S							
SDM	S00	Shutdown enabled	●				
	S01	Shutdown prohibited	●				
SFR	S01	Measures against AM radio noise - Pattern 1	●		Mod	●	
	S02	Measures against AM radio noise - Pattern 2	●		Mod	●	
	S03	Measures against AM radio noise - Pattern 3	●		Mod	●	
	S04	Measures against AM radio noise - Pattern 4	●		Mod	●	
	S05	Measures against AM radio noise - Pattern 5	●		Mod	●	
	S06	Measures against AM radio noise - Pattern 6	●		Mod	●	
	S07	Measures against AM radio noise - Pattern 7	●		Mod	●	
	S08	Measures against AM radio noise - Pattern 8	●		Mod	●	
SKM	S00	STREAKING correction OFF	●		Mod	●	
	S01	STREAKING correction mode 1	●		Mod	●	
	S02	STREAKING correction mode 2	●		Mod	●	
	S03	STREAKING correction mode 3	●		Mod	●	
	S04	STREAKING correction mode 4	●		Mod	●	
	S05	STREAKING correction mode 5	●		Mod	●	
	S06	STREAKING correction mode 6	●		Mod	●	
	S07	STREAKING correction mode 7	●		Mod	●	
	S08	STREAKING correction mode 8	●		Mod	●	
SMC	S01	Smooth clear drive OFF	●			●	
	S02	Smooth clear drive ON	●			●	
SML	***	Adjustment of the side mask level		●	Main	●	
SMM	S**	Setting of the effective area during streaking correction	●			●	
SN0	***	Setting of the serial No. 0 (panel)	●		Mod	●	
SN1	***	Setting of the serial No. 1 (panel)	●		Mod	●	
SN2	***	Setting of the serial No. 2 (panel)	●		Mod	●	
SN3	***	Setting of the serial No. 3 (panel)	●		Mod	●	
SN4	***	Setting of the serial No. 4 (panel)	●		Mod	●	
SQM	S01	VIDEO sequence setting	●				
	S02	PC sequence setting	●				
SSM	S01	SSCG OFF	●			●	
	S02	SSCG ON	●			●	
SZM	S00	Setting the screen size to Dot by Dot		●	Main		
	S01	Setting the screen size to 4 :3		●	Main		
	S02	Setting the screen size to FULL		●	Main		
	S03	Setting the screen size to ZOOM		●	Main		
	S04	Setting the screen size to CINEMA		●	Main		
	S05	Setting the screen size to WIDE		●	Main		
T							
THS	S00	Theater port interlock operation OFF	●				
	S01	Theater port interlock operation ON	●				
U							
UAJ		Determining the flag for the DIGITAL Assy adjustment in "not adjusted"	●				
UP*		To add *** to the adjustment value (*** = 000 to 999, designated by a function command)		●			

Command Name		Function	Active U-com		Last Memory	Effective only in Factory mode	Remarks
			MDU	MTB			
V							
VFQ	S01	Setting the frequency in Mask mode to VD-48 Hz	●		Mod	●	
	S02	Setting the frequency in Mask mode to VD-50 Hz	●		Mod	●	
	S03	Setting the frequency in Mask mode to VD-60 Hz	●		Mod	●	
	S05	Setting the frequency in Mask mode to VD-72 Hz	●		Mod	●	
	S06	Setting the frequency in Mask mode to VD-75 Hz	●		Mod	●	
	S13	Setting the frequency in Mask mode to PC-60 Hz	●		Mod	●	
	S22	Setting the frequency in Mask mode to VD-50 Hz (nonstandard)	●		Mod	●	
	S23	Setting the frequency in Mask mode to VD-60 Hz (nonstandard)	●		Mod	●	
	S25	Setting the frequency in Mask mode to VD-72 Hz (nonstandard)	●		Mod	●	
	S26	Setting the frequency in Mask mode to VD-75 Hz (nonstandard)	●		Mod	●	
VOF	***	Adjustment of the reference value of Vofs voltage	●			●	
VOL	UP*, DW*, ***	To adjust the volume (to be used in combination with UP*/DW*)		●			
VRP	***	Adjustment of the reference value of Vrst-p voltage	●			●	
VSU	***	Adjustment of the reference value of Vsus voltage	●			●	
VX1	***	Adjustment of the reference value of Vxpofs1 voltage	●		Mod	●	UP*/DN* is not effective
VX2	***	Adjustment of the reference value of Vxpofs2 voltage	●		Mod	●	UP*/DN* is not effective
VY1	***	Adjustment of the reference value of Vyknofs1, 2 voltage	●		Mod	●	UP*/DN* is not effective
VY3	***	Adjustment of the reference value of Vyknofs3 voltage	●		Mod	●	UP*/DN* is not effective
VY4	***	Adjustment of the reference value of Vyknofs4 voltage	●		Mod	●	UP*/DN* is not effective
W							
WBI	S00	Panel WB standard output mode: off	●			●	
	S01	Panel WB standard output mode: on	●			●	
X							
X1B	***	XSUS_1ST_B adjustment	●		Mod	●	UP*/DN* is not effective
X3B	***	XSUS_3RD_B adjustment	●		Mod	●	UP*/DN* is not effective
XSB	***	XSUS_B adjustment	●		Mod	●	UP*/DN* is not effective
Y							
Y1K	***	YSTL_1SF_KSB adjustment	●		Mod	●	UP*/DN* is not effective
Y1Z	***	YSTL_1SF_HZ adjustment	●		Mod	●	UP*/DN* is not effective
Y2B	***	YSUS_2ND_B adjustment	●		Mod	●	UP*/DN* is not effective
Y2K	***	YSTL_2SF_KSB adjustment	●		Mod	●	UP*/DN* is not effective
Y2Z	***	YSTL_2SF_HZ adjustment	●		Mod	●	UP*/DN* is not effective
YNK	***	YSTL_FMR_KSB adjustment	●		Mod	●	UP*/DN* is not effective
YNZ	***	YSTL_FMR_HZ adjustment	●		Mod	●	UP*/DN* is not effective
YTK	***	YSTL_KSB adjustment	●		Mod	●	UP*/DN* is not effective
YTZ	***	YSTL_HZ adjustment	●		Mod	●	UP*/DN* is not effective
YSB	***	Y-SUS-B adjustment	●		Mod	●	UP*/DN* is not effective
Z							
ZME		Initializing the video EEPROM data		●		●	
ZPR		Initializing the setting data to which no adjustment command is provided	●			●	

9.3 DETAILS OF EACH COMMANDS

9.3.1 QS1 (PANEL STATUS)

Model information and version information are returned.

Command Format	Effective Operation Modes	Function	Remarks
[QS1]	Every Time	Output of status	Return data: 3 (ECO) + 84 (DATA) + 2 (CS) = 89 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QS1 (Fixed)
1	Display information 1 (Resolution/inch size)	1 byte	3
2	Display information 2 (Panel Generation)	1 byte	8
3	Display information 3 (Destination)	1 byte	*
4	Display information 4 (Grade)	1 byte	*
5	Display information 5 (Panel Product Form)	1 byte	B
6	Boot version of Module microcomputer	3 byte	01A
7	Program version of Module microcomputer	8 byte	001H_M
8	Boot version of Sequence processor	3 byte	01H
9	Program version of Sequence processor	8 byte	001Y
10	Panel information	8 byte	G8_50X_6
11	Reserved (*)	8 byte	********
12	, (comma)	1 byte	
13	MTB information 1 (Generation)	1 byte	8
14	MTB information 2 (Regional model)	1 byte	A
15	MTB information 3 (Grade)	1 byte	H
16	MTB information 4 (System Type)	1 byte	B
17	Common version for IF microcomputer	8 byte	010AE
18	Boot version of IF microcomputer	4 byte	01A
19	Common version for Main microcomputer	8 byte	–01A
20	Boot version of Main microcomputer	4 byte	01A
21	Common version for Multi-processor	8 byte	–01A
22	Boot version of Multi-processor	4 byte	01A
23	Check Sum	2 byte	FF

13: MTB/MB Generation	
6	G6
7	G7
8	G8
9	G9
0	G10

14: Regional Model	
J	JP
A	US
E	EU
G	GE
C	CH
U	AU

15: MTB/MB Grade	
H	Elite/XDA/Step-upD
T	Step-upA/XG/XC/Regular (US)
B	Not used (For Future)
S	RegularD
R	RegularA

16: MTB/MB Product Form	
S	System model
B	One body model (SX)

1: Resolution/Inch Size	
3	1024*768-42
4	1024*768-43
5	1280*768-50
6	1365*768-50
7	1365*768-60
E	1920*1080-42
F	1920*1080-50
G	1920*1080-60

3: Destination	
*	Commonness
A	US (Reserved)
E	EU (Reserved)
J	Japan (Reserved)

4: Grade	
*	Commonness
Z	Evaluation

10: Panel Information		
1 to 3rd byte	G8_	Generation information (+ under bar)
4 to 5th byte	42	42 inch
	50	50 inch
	60	60 inch
	**	PSIZE information and SQ_LSI version mismatching (version mismatching at SD)
6th byte	F	FHD
	X	XGA
	*	Model information and SQ_LSI version mismatching (version mismatching at SD)
7th byte	_	Under bar
8th byte	*	PLANT information and SQ_LSI version mismatching (version mismatching at SD)
	‘	Others

2: Panel Generation	
6	G6
7	G7
8	G8
9	G9
0	G10

5: Panel Product Form	
S	System model
B	All-in-one design TV
M	Monitor
D	Standard module
E	Simple module

9.3.2 QS2 (PANEL OPERATION DATA)

The command QS2 is for acquiring data on the panel's operational information.

Command Format	Effective Operation Modes	Function	Remarks
[QS2]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO) + 34 (DATA) + 2 (CS) = 39 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QS2
1	Notification of mode shifting to STB	1 byte	1
2	Flag for adjustment of the main unit	1 byte	0
3	Flag for adjustment-data backup	1 byte	0
4	"1st PD" data	1 byte	0
5	"2nd PD" data	1 byte	0
6	Reserved	3 byte	***
7	Temperature data (TEMP 1)	3 byte	128
8	SD main data	1 byte	0
9	SD sub data	1 byte	0
10	Operation status induced by SD	1 byte	0
11	Reserved	3 byte	***
12	HOUR METER	8 byte	00000259
13	MASK indication	1 byte	0
14	Still picture detection	1 byte	0
15	SCAN protection detection	1 byte	0
16	Panel crack detection	1 byte	0
17	Address emergency detection	1 byte	0
18	Reserved	4 byte	****
CS		2 byte	4A

1: Notification of mode shifting to Standby	
P	During power ON
0	Entering Standby mode failed
1	Entering Standby mode succeeded

2: Adjustment of the main unit	
0	Adjustment completed
1	Adjustment not completed

3: Adjustment-data backup	
0	With backup data
1	No data (default)

4, 5: PD data	
0	No PD data
1	Not used
2	POWER
3	SCAN
4	SCN-5V
5	Y-DRV
6	Y-DCDC
7	Y-SUS
8	ADRS
9	X-DRV
A	X-DCDC
B	X-SUS
C	DIG-DCDC
D	Not used
E	Not used
F	UNKNOWN

8: SD main data	
0	No SD
1	SQ_LSI
2	MDU-IIC
3	RST2
4	TEMP

9-1: SD-Sub (SQ_LSI)	
0	No SD-Sub data
1	Communication error
2	Drive stop
3	BUSY
4	Version mismatching (H/S)
5	Version mismatching (M/S)

9-2: SD-Sub (IIC)	
0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC1
4	DAC2

9-3: SD-Sub (TEMP)	
0	No SD-Sub data
1	TEMP1 high temperature
2	TEMP1 low temperature

10: Operation status induced by SD	
0	Normal
1	Relay-off completed
2	During warning indication

13: MASK indication	
0	MASK-OFF
1	MASK-ON

14 to 17: Detection of Panel Protection function	
0	Normal
1	At detection

9.3.3 QS3 (OTHER DATA ON THE PANEL)

The command QS3 is for acquiring data on operational information of the panel.

Command Format	Effective Operation Modes	Function	Remarks
[QS3]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO) + 58 (DATA) + 2 (CS) = 63 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QS3
1	SERIAL	15 byte	- - - - - - - - - - - - - - -
2	HOUR METER	8 byte	00000000
3	TOTAL HR METER	8 byte	00000000
4	PON COUNTER	8 byte	00000000
5	TEMP1 acquisition (Temperature value)	5 byte	+23.5 (*1)
6	TEMP0 acquisition (Temperature value)	5 byte	+28.7 (*1)
7	MAX-TEMP1 acquisition (Temperature value)	5 byte	+78.3 (*1)
8	Reserved	4 byte	****
CS		2 byte	94

Note
(*1) : Centigrade scale

9.3.4 QAJ (PANEL ADJUSTMENT DATA)

The command QAJ is for acquiring the panel's factory-preset data.

Command Format	Effective Operation Modes	Function	Remarks
[QAJ]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO) + 84 (DATA) + 2 (CS) = 89 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QAJ
1	V-SUS adjustment value	3 byte	128
2	Vysnofs adjustment value	3 byte	128
3	Vyprst adjustment value	3 byte	128
4	Vxpofs1 adjustment value	3 byte	128
5	Vxpofs2 adjustment value	3 byte	128
6	Vyknofs1,2 adjustment value	3 byte	128
7	Vyknofs3 adjustment value	3 byte	128
8	Vyknofs4 adjustment value	3 byte	128
9	R1K adjustment value	3 byte	128
10	R2K adjustment value	3 byte	128
11	Y1K adjustment value	3 byte	128
12	Y1Z adjustment value	3 byte	128
13	X1B adjustment value	3 byte	128
14	Y2B adjustment value	3 byte	128
15	X3B adjustment value	3 byte	128
16	YSB adjustment value	3 byte	128
17	XSB adjustment value	3 byte	128
18	YTK adjustment value	3 byte	128
19	YTZ adjustment value	3 byte	128
20	Y2K adjustment value	3 byte	128
21	Y2Z adjustment value	3 byte	128
22	YNK adjustment value	3 byte	128
23	YNZ adjustment value	3 byte	128
24	R-REVISE setting value	1 byte	0
25	G-REVISE setting value	1 byte	0
26	B-REVISE setting value	1 byte	0
27	ADDRESS 1, 2 setting value	2 byte	01
28	ADDRESS 3, 4 setting value	2 byte	13
29	ADDRESS 5, 6 setting value	2 byte	32
30	ADDRESS 7, 8 setting value	2 byte	30
31	Streaking correction	1 byte	1
32	AM radio countermeasure	1 byte	1
33	Reserved	2 byte	**
CS		2 byte	B7

31: Streaking correction	
0	OFF
n	n: 1 to 8 (Mode n)

32: AM radio countermeasure	
n	n: 1 to 8 (SUS frequency n)

9.3.5 QPW (VIDEO ADJUSTMENT DATA OF THE PANEL)

The command QPW is for acquiring the factory-preset data about the video of the panel.

Command Format	Effective Operation Modes	Function	Remarks
[QPW]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO) + 40 (DATA) + 2 (CS) = 45 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QPW
1	Drive sequence	3 byte	60V
2	Standard/nonstandard	1 byte	S
3	Type of ABL/WB tables	2 byte	T2
4	ABL adjustment value	3 byte	128
5	R-HIGH adjustment value	3 byte	256
6	G-HIGH adjustment value	3 byte	256
7	B-HIGH adjustment value	3 byte	256
8	R-LOW adjustment value	3 byte	512
9	G-LOW adjustment value	3 byte	512
10	B-LOW adjustment value	3 byte	512
11	R gamma setting	2 byte	31
12	G gamma setting	2 byte	10
13	B gamma setting	2 byte	10
14	Streaking correction	1 byte	1
15	Center luminance correction	1 byte	0
16	Reserved	1 byte	*
17	WB interlocked with APL	1 byte	0
18	Transition of protective operations	1 byte	0
19	Reserved	2 byte	**
CS		2 byte	37

1: Drive sequence	
50V	Video 50 Hz
60V	Video 60 Hz
72V	Video 72 Hz
75V	Video 75 Hz
60P	PC 60 Hz

2: Standard/ nonstandard	
S	Standard
N	Nonstandard

3: Type of ABL/WB tables	
Tn	n: 1 to 4

11, 12, 13: RGB Gamma setting	
n	00 to 31

15: Center luminance correction	
0	OFF
1	ON
2	ON (interlocked with APL)

17: WB interlocked with APL	
0	OFF
1	ON
2	WB interlocked ON/γ OFF
3	WB interlocked OFF/γ ON

18: Transition of brightness by protective operations	
0	Upper limit state for brightness
1	Brightness being reduced
2	Lower limit state for brightness
3	Brightness being increased

9.3.6 QPM (PULSE METER VALUE)

The command QPM is for acquiring the accumulated number of pulses of the panel.

Command Format	Effective Operation Modes	Function	Remarks
[QPM]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO) + 40 (DATA) + 2 (CS) = 45 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QPM
1	Pulse meter B 1	8 byte	00000000
2	Pulse meter B 2	8 byte	00000000
3	Pulse meter B 3	8 byte	00000000
4	Pulse meter B 4	8 byte	00000000
5	Pulse meter B 5	8 byte	00000000
CS		2 byte	E7

9.3.7 QPD (PD LOGS)

The command QPD is for acquiring data from the 8 latest power-down (PD) logs.

Command Format	Effective Operation Modes	Function	Remarks
[QPD]	All operations	To acquire data on the power-down logs	Return data: 3 (ECO) + 80 (DATA) + 2 (CS) = 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QPD
1	Latest "1st PD" data	1 byte	A
2	Latest "2nd PD" data	1 byte	2
3	Data from the hour meter for the latest PD	8 byte	00010020
4	Second latest "1st PD" data	1 byte	E
5	Second latest "2nd PD" data	1 byte	9
6	Data from the hour meter for the second latest PD	8 byte	00008523
7	Third latest "1st PD" data	1 byte	4
8	Third latest "2nd PD" data	1 byte	3
9	Data from the hour meter for the third latest PD	8 byte	00004335
10	Fourth latest "1st PD" data	1 byte	2
11	Fourth latest "2nd PD" data	1 byte	0
12	Data from the hour meter for the fourth latest PD	8 byte	00000945
13	Fifth latest "1st PD" data	1 byte	4
14	Fifth latest "2nd PD" data	1 byte	0
15	Data from the hour meter for the fifth latest PD	8 byte	00000715
16	Sixth latest "1st PD" data	1 byte	A
17	Sixth latest "2nd PD" data	1 byte	2
18	Data from the hour meter for the sixth latest PD	8 byte	00000552
19	Seventh latest "1st PD" data	1 byte	A
20	Seventh latest "2nd PD" data	1 byte	0
21	Data from the hour meter for the seventh latest PD	8 byte	00000213
22	Eighth latest "1st PD" data	1 byte	D
23	Eighth latest "2nd PD" data	1 byte	0
24	Data from the hour meter for the eighth latest PD	8 byte	000001A7
CS		2 byte	27

1, 2, 4, 5: PD data	
0	No PD
1	Not used
2	P-POWER
3	SCAN
4	SCN-5V
5	Y-DRIVE
6	Y-DCDC
7	Y-SUS
8	Address
9	X-DRIVE
A	X-DCDC
B	X-SUS
C	DIG-DCDC
D	Not used
E	Not used
F	UNKNOWN

9.3.8 QSD (SD LOGS)

The command QSD is for acquiring the data from the 8 latest shutdown (SD) logs.

Command Format	Effective Operation Modes	Function	Remarks
[QSD]	All operations	To acquire data on the shutdown logs	Return data: 3 (ECO) + 80 (DATA) + 2 (CS) = 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QSD
1	Latest SD data	1 byte	1
2	Latest SD subcategory data	1 byte	0
3	Data from the hour meter for the latest SD	8 byte	00752013
4	Second latest SD data	1 byte	5
5	Second latest SD subcategory data	1 byte	0
6	Data from the hour meter for the second latest SD	8 byte	00495204
7	Third latest SD data	1 byte	2
8	Third latest SD subcategory data	1 byte	3
9	Data from the hour meter for the third latest SD	8 byte	00100355
10	Fourth latest SD data	1 byte	2
11	Fourth latest SD subcategory data	1 byte	5
12	Data from the hour meter for the fourth latest SD	8 byte	00075620
13	Fifth latest SD data	1 byte	1
14	Fifth latest SD subcategory data	1 byte	0
15	Data from the hour meter for the fifth latest SD	8 byte	00000852
16	Sixth latest SD data	1 byte	2
17	Sixth latest SD subcategory data	1 byte	5
18	Data from the hour meter for the sixth latest SD	8 byte	000000451
19	Seventh latest SD data	1 byte	0
20	Seventh latest SD subcategory data	1 byte	0
21	Data from the hour meter for the seventh latest SD	8 byte	00000000
22	Eighth latest SD data	1 byte	0
23	Eighth latest SD subcategory data	1 byte	0
24	Data from the hour meter for the eighth latest SD	8 byte	00000000
CS		2 Byte	7D

• SD data

0	No SD
1	SQ_LSI
2	MDU-IIC
3	RST2
4	TEMP

• SD subcategory (SQ_LSI)

0	No SD-Sub data
1	Communication error
2	Drive stop
3	BUSY
4	Version mismatching (H/S)
5	Version mismatching (M/S)

• SD subcategory (MDU-IIC)

0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC1
4	DAC2

• SD subcategory (TEMP)

0	No SD-Sub data
1	TEMP1 (high temperature)
2	TEMP1 (low temperature)

9.3.9 QSE (DESTINATION PECULIAR INFORMATION)

Induce it peculiar, individual information is acquired.

Command Format	Effective Operation Modes	Function	Remarks
[QSE]	Every time	Output of status	

Order	Part	Data Arrangement	Data Length	Output Example
0	–	Received Command name	3 byte	QSE
1		DTV Hardware Version	8 byte	07080200
2		DTV Hardware Serial	8 byte	16777215
3		DTV RUNTIME Version	8 byte	= 00K.22p
4		CFE Version	8 byte	07.00d
5		KERNEL Version	8 byte	2.4.2527
6		ROOTS Version	8 byte	04.13d
7		FLAGS Information 1	1 byte	Y
8		FLAGS Information 2	1 byte	*
9		FLAGS Information 3	1 byte	N
10		FLAGS Information 4	1 byte	Y
11		FLAGS Information 5	1 byte	N
12		FLAGS Information 6	1 byte	N
13		HMG/HG Model Version	10 byte	1.0.126
14		User Password	4 byte	1234
15	–	Check Sum	2 byte	13

9.3.10 QMT (TEMPERATURE / FAN ROTATION / ROOM LIGHT SENSOR)

Temperature information / FAN rotation state / Room light sensor information on the MTB side is returned.

Command Format	Effective Operation Modes	Function	Remarks
[QMT]	Every time	Output of status	A/D value of MTB-side's temperature/FAN rotating status

Order	Part	Data Arrangement	Data Length	Output Example
0	–	Received Command name	3 byte	QMT
1	MTB	A/D value of MTB-side Temperature	3 byte	267
2		MTB-side FAN rotating speed (0: STOP, 1: LOW, 2: HIGH)	1 byte	1
3		A/D value of room light sensor	3 byte	009
4		Level of room light sensor (Value: 1 to 5)	1 byte	5

9.3.11 QNG (SHUTDOWN INFORMATION OF MTB)

MTB side's shutdown information is acquired.

Command Format	Effective Operation Modes	Function	Remarks
[QNG]	Every time	Output of status	

Order	Part	Data Arrangement	Data Length	Output Example
0	–	Received Command name	3 byte	QNG
1	MTB	1st latest NG No.	1 byte	0
2		Subcategory No. for the 1st latest NG.	1 byte	0
3		MTB hour meter for the 1st latest NG.	7 byte	0000000
4		Reserved	3 byte	fixed on 000
5		2nd latest NG No.	1 byte	0
6		Subcategory No. for the 2nd latest NG.	1 byte	0
7		MTB hour meter for the 2nd latest NG.	7 byte	0000000
8		Reserved	3 byte	fixed on 000
9		3rd latest NG No.	1 byte	0
10		Subcategory No. for the 3rd latest NG.	1 byte	0
11		MTB hour meter for the 3rd latest NG.	7 byte	0000000
12		Reserved	3 byte	fixed on 000
:		:	:	
29		8th latest NG No.	1 byte	0
30		Subcategory No. for the 8th latest NG.	1 byte	0
31		MTB hour meter for the 8th latest NG.	7 byte	0000000
32		Reserved	3 byte	fixed on 000
33	–	Check Sum	2 byte	00

< SD Information No. >

Frequency *	Part	Part	Remarks (Operation)
5	MTB part	Shutdown signal from audio amp. / short-circuit of speaker terminal	Shutdown after 30 seconds warning
6		Failure of communication with Module microcomputer	Immediately Shutdown
7		3-wire serial communication of Main microcomputer	Go to No. 7 Subcategory Information
8		IIC communication failure of MTB side	Go to No. 8 Subcategory Information
9		Communication failure of Main microcomputer	Immediately Shutdown
10(A)		Failure of FAN	Go to No. 10 Subcategory Information
11(B)		Abnormally in high temperature	Shutdown after 30 seconds warning
12(C)		Failure of Digital Tuner	Go to No. 12 Subcategory Information
13(D)		Failure of Power Supply at MTB side	Go to No. 13 Subcategory Information
14(E)		Startup failure of Home Media Gallery	-
15(F)		Failure of Main EEPROM	Immediately Shutdown

*: Indicates the frequency of Blue LED flashing when the shutdown is occurred.

< No. 7 Subcategory Information on "Failure in 3-wire serial communication of Main microcomputer" >

Value	Shutdown Factor	Remarks (Operation)
1	Communication error of IF microcomputer	Shutdown
2	Communication error of sequence processor	Shutdown

< No. 8 Subcategory Information on "Failure in IIC communication of MTB side" >

Value	Shutdown Factor	Remarks (Operation)
1	Tuner 1	Shutdown
2	MSP/MAP	Shutdown
3	AV Switch	Shutdown
4	RGB Switch	Shutdown
5	VDEC	Shutdown
6	VDEC-SDRAM	Shutdown
7	AD/PLL	Shutdown
8	HDMI	Shutdown
A	Tuner 2	Shutdown
B	US-MSP	Shutdown

< No. 10 Subcategory Information on "Abnormally in FAN" >

Value	Shutdown Factor	Remarks (Operation)
1	FAN 1	Shutdown
2	FAN 2 (FHD only)	Shutdown

< No. 12 Subcategory Information on "Failure in Digital Tuner" >

Value	Shutdown Factor	Remarks (Operation)
1	DTV starting failure	Turn off the screen, then reset the device.
2	DTV communication error	
4	Abnormmaly in BCM7038	
7	Tuner 1 or 2	
8	Card I/F IC	
9	VBI Slicer	
C	EEPROM	
E	TV Guide	
G	Home Gallery	
H	Middleware	
I	Application	

< No. 13 Subcategory Information on "Failure in Power supply at MTB side" >

Value	Shutdown Factor	Remarks (Operation)
1	RST 2	Shutdown
2	RST 4	Shutdown

9.3.12 QSI (INPUT SIGNAL DATA)

The command QSI is for acquiring all data on input video signals.

Command Format	Effective Operation Modes	Function	Remarks
[QSI]	All operations	To acquire all data on input video signals	Return data: 3 (ECO) + 66 (DATA) + 2 (CS) = 71 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QSI
1	Type of drive sequence	3 Byte	60V
2	Standard/nonstandard	1 Byte	S
3	Type of ABL/WB tables	2 Byte	T1
4	Total value of PCN	4 Byte	0256
5	Total value of PRH	4 Byte	0256
6	Total value of PGH	4 Byte	0256
7	Total value of PBH	4 Byte	0256
8	Total value of PBR	4 Byte	0512
9	Total value of PRL	4 Byte	0512
10	Total value of PGL	4 Byte	0512
11	Total value of PBL	4 Byte	0512
12	Total value of ABL	3 Byte	128
13	Detection of V frequency	4 Byte	6002
14	Reserved	1 Byte	*
15	Reserved	3 Byte	***
16	Obtained APL data	4 Byte	1023
17	Number of SUS pulses	4 Byte	0457
18	Result of detection of still picture	1 Byte	1
19	Result of detection of cracking in the panel	1 Byte	1
20	Result of detection for scanning protection	1 Byte	1
21	Result of detection for external protection	1 Byte	1
22	Transition of protection operation	1 Byte	0
23	Reserved	4 Byte	****
CS		2 Byte	27

9.3.13 DRV (PANEL DRIVE-POWER ON / OFF)

Drive ON/OFF: ON/OFF control of panel drive-power system

Command Format	Effective Operation Modes	Function	Remarks
[DRV+S00]	Every time	DRIVE OFF	
[DRV+S01]	Every time	DRIVE ON (default)	

Once the DRIVE OFF command is accepted, DRIVE OFF cannot be canceled by pressing the DRIVE OFF key again or by turning the unit off then back on with the STANDBY OFF/ON key.
To cancel DRIVE OFF, restart the unit by unplugging then again plugging in the power cord.

9.3.14 FAY / FAN (ADJ. COMMANDS PERMISSION / PROHIBITION)

The commands FAY/FAN are for prohibiting/permitting panel/MTB-adjustment commands.

Command Format	Operation		Remarks
	Effective Operation Modes	Control	
[FAY]	Normal operation mode while the power is on	Adjustment command is valid.	For details, refer to the section “6.1.3 FUNCTIONS WHEN ENTERING THE SERVICE FACTORY MODE”.
[FAN]	During FAY	Adjustment command is invalid.	

9.3.15 FAJ / UAJ / CBU / BCP (BACKUP FUNCTION FOR ADJUSTMENT VALUE)

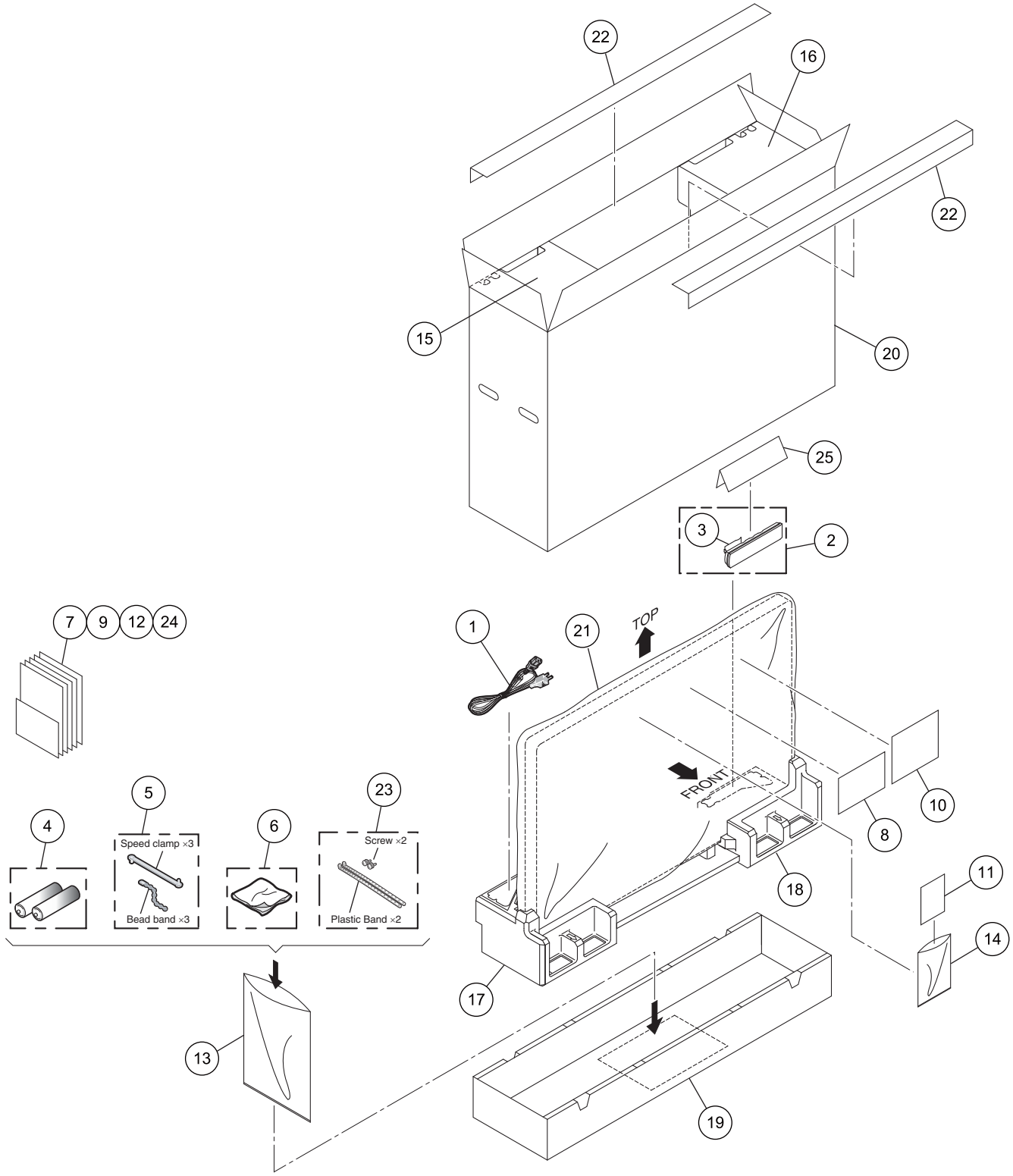
When the DIGITAL Assy is to be replaced, adjustment values can be copied from the backup EEPROM to the EEPROM of the Assy for service.

Command Format	Operation			Remarks
	Effective Operation Modes	Control		
[FAJ]	During FAY	To make the flag setting that indicating that adjustment of the panel unit has been completed	Writing 00 to the 4 k byte ROM and copying to the 2 k byte ROM	This takes at least 350 mS.
[UAJ]		To make the flag setting that indicating that adjustment of the main unit has not been completed	Writing F0 to the 4 k byte ROM	
[CBU]		To make the flag setting that indicating that backup data have not been copied	Writing F0 to the 2 k byte ROM	The backup ROM is initialized.
[BCP]		To copy Digital backup data to EEPROM	Copying backup data	

10. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

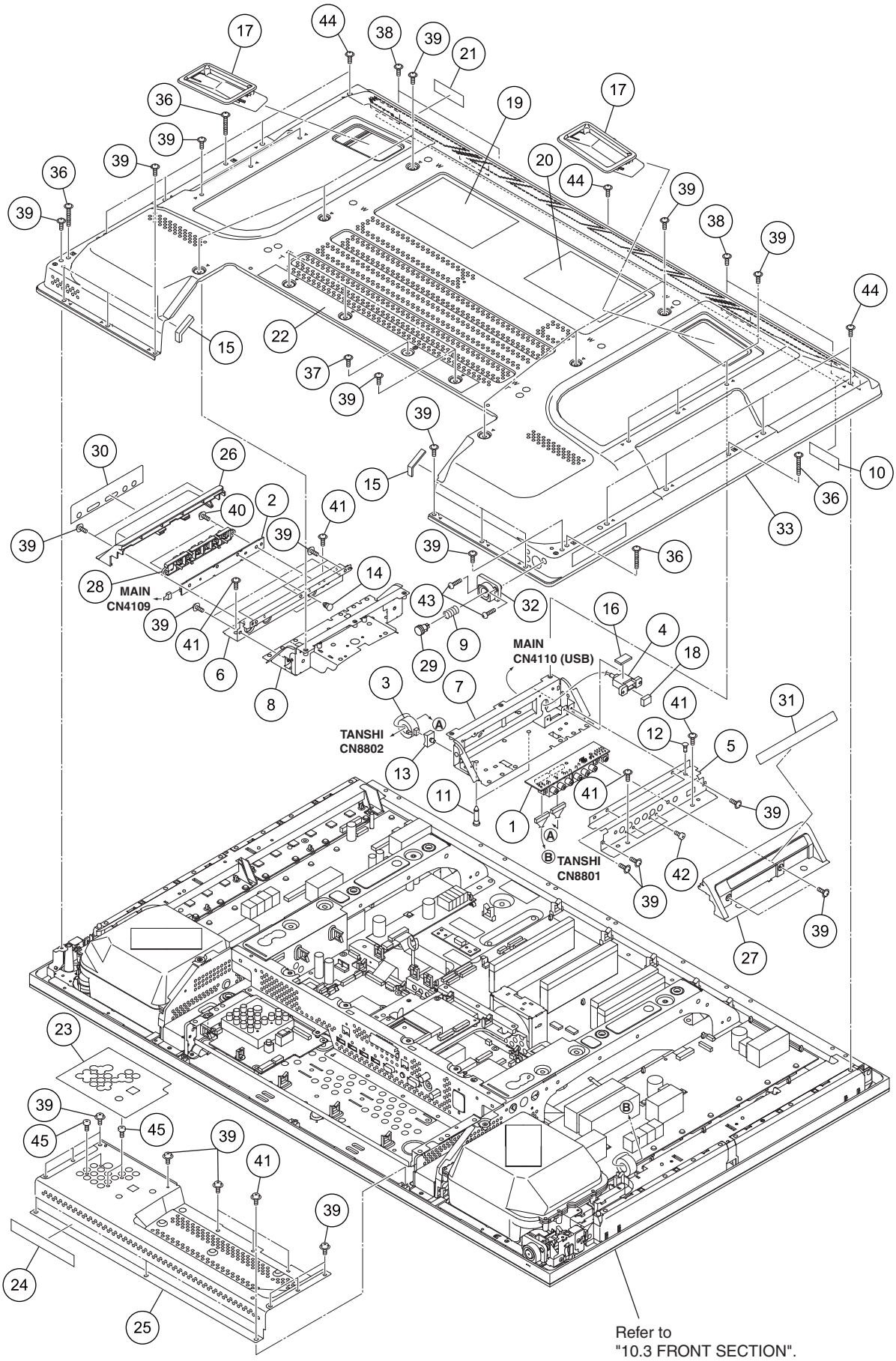
10.1 PACKING SECTION



PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
⚠	1	Power Cord (2 m)	ADG1215
	2	Remote Control Unit	AXD1550
	3	Battery Cover	AZN2681 2
NSP	4	Alkaline Dry Cell Battery (LR6, AA)	VEM1023
	5	Binder Assy	AEC1908
	6	Cleaning Cloth	AED1285
	7	Operating Instructions (English, French, Spanish)	ARE1471
	8	Caution Card	ARM1239
	9	Cleaning Caution (U)	ARM1303
	10	Accessory Caution	ARM1304
NSP	11	Warranty Card	ARY1196
NSP	12	Card (Register)	ARY1156
	13	Polyethylene Bag	AHG1394
	14	Vinyl Bag	AHG1347
	15	Pad (428 T-L)	AHA2666
	16	Pad (428 T-R)	AHA2667
	17	Pad (428 B-L)	AHA2664
	18	Pad (428 B-R)	AHA2665
	19	Under Carton (428)	AHD3587
	20	Upper Carton (4280HD)	AHD3590
	21	Packing Sheet	AHG1352
	22	Paper Angle (428)	AHB1295
	23	Band Assy	AXY1192
	24	After Image Caution	ARM1351
	25	Power Button Caution	ARM1345

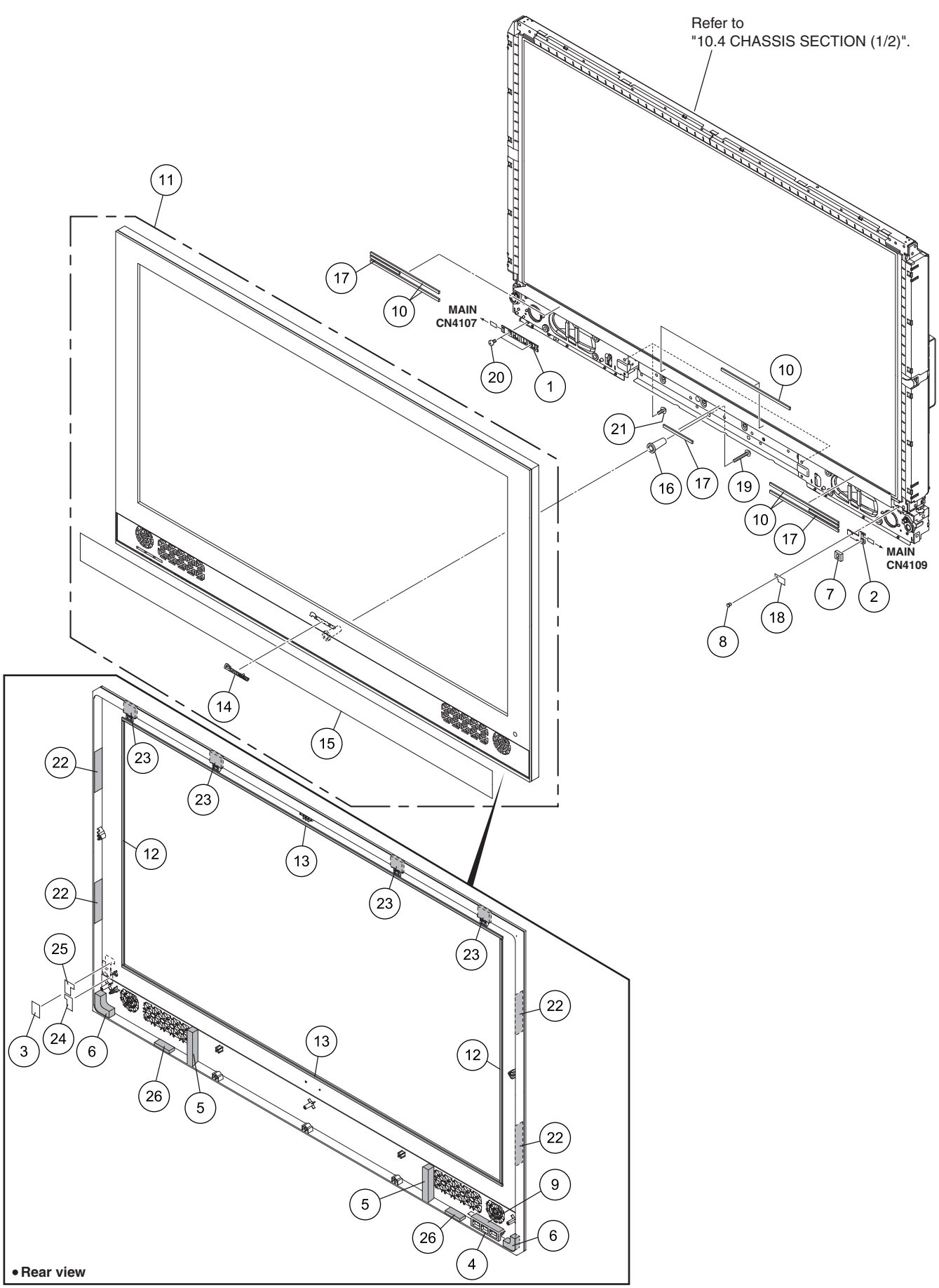
10.2 REAR SECTION



REAR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	SIDE IO Assy	AWW1274
	2	SIDE KEY Assy	AWW1275
	3	Ferrite Core (F10)	ATX1060
	4	USB Cable (J301)	ADF1033
	5	Side Input Panel (8U)	ANC2457
	6	Function Button Base	ANG3066
	7	Side Input Shield	ANK1938
	8	Function Button Shield	ANK1939
	9	Coil Spring	ABH1125
	10	Rear Case Cushion	AEB1439
	11	Spacer	AEC1288
	12	PCB Spacer	AEC1570
	13	Ferrite Core Holder	AEC1818
	14	Locking Card Spacer	AEC2019
	15	Protect Sheet C	AED1300
	16	USB Spacer A	AED1317
	17	Inner Grip Assy	AMR3693
⚠	18	Gasket (USB)	ANK1846
NSP	19	Name Label (4280HD)	AAL2947
	20	Bolt Caution Label (U)	AAX3534
NSP	21	Serial Seal	AAX3182
	22	Label A (U)	AAX3478
	23	Label B (U)	AAX3535
	24	Label C (U)	AAX3501
	25	Terminal Panel B (42U)	ANC2447
	26	Function Button Panel	AMB2906
	27	Side Input Cover	AMB2911
	28	Function Button	AAC1562
	29	Power Button	AAD4145
	30	Function Button Sheet (8U)	AAK2919
	31	Input Cover Label 8U	AAX3509
	32	Power Button Holder	AMR3539
	33	Rear Case (428)	ANE1667
	34	•••••	
	35	•••••	
	36	Screw (3 x 40P)	ABA1332
	37	Screw	ABA1341
	38	Screw (4 x 18)	BBZ40P160FTB
	39	Screw	AMZ30P060FTB
	40	Screw	AMZ30P080FTC
	41	Screw	APZ30P080FTB
	42	Screw	BPZ30P080FTB
	43	Screw	BPZ30P140FTB
	44	Screw	TBZ40P080FTB
	45	Screw	BBZ30P060FTB

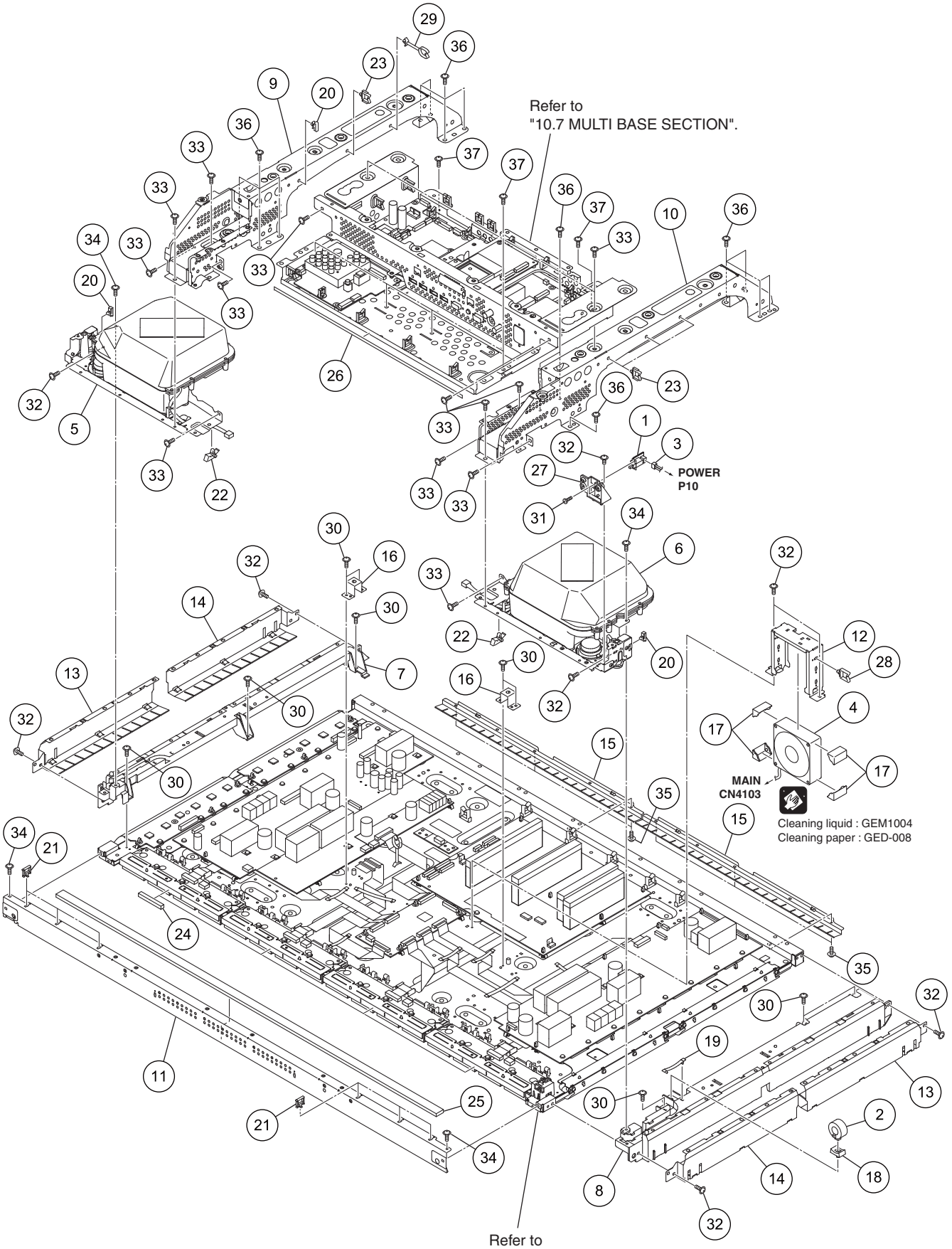
10.3 FRONT SECTION



FRONT SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	42/60LED Assy	AWW1276
	2	42RLS&IR Assy	AWW1277
	3	IR Sheet B (428)	AAX3551
	4	Blind Cushion 427HX	AEB1443
	5	Speaker Cushion	AEB1452
	6	Speaker Cushion S	AEB1460
	7	IR Block Cushion	AEB1465
	8	Nylon Rivet	AEC1671
	9	Insulation Sheet B	AED1284
	10	Isolation Sheet	AED1289
	11	Front Case Assy (428PU)	AMB3015
	12	Panel Cushion V (42)	AED1323
	13	Panel Cushion H (42)	AED1322
	14	Pioneer Name Plate (42)	AAM1115
	15	Punching Sheet (428)	AAS1016
	16	Front Collar	AMR3695
	17	Isolation Cushion B	AED1326
	18	Sensor Filter	AAK2926
	19	Screw (3 x 30P)	ABA1350
	20	Screw (M3 x 4)	ABA1354
	21	Screw	APZ30P080FTB
	22	Insulation Sheet A	AED1283
	23	Front Cushion (42)	AEB1484
	24	Sensor Cushion A (428)	AEB1485
	25	Sensor Cushion B (428)	AEB1486
	26	Front Case Cushion B (428)	AEB1488

10.4 CHASSIS SECTION (1/2)

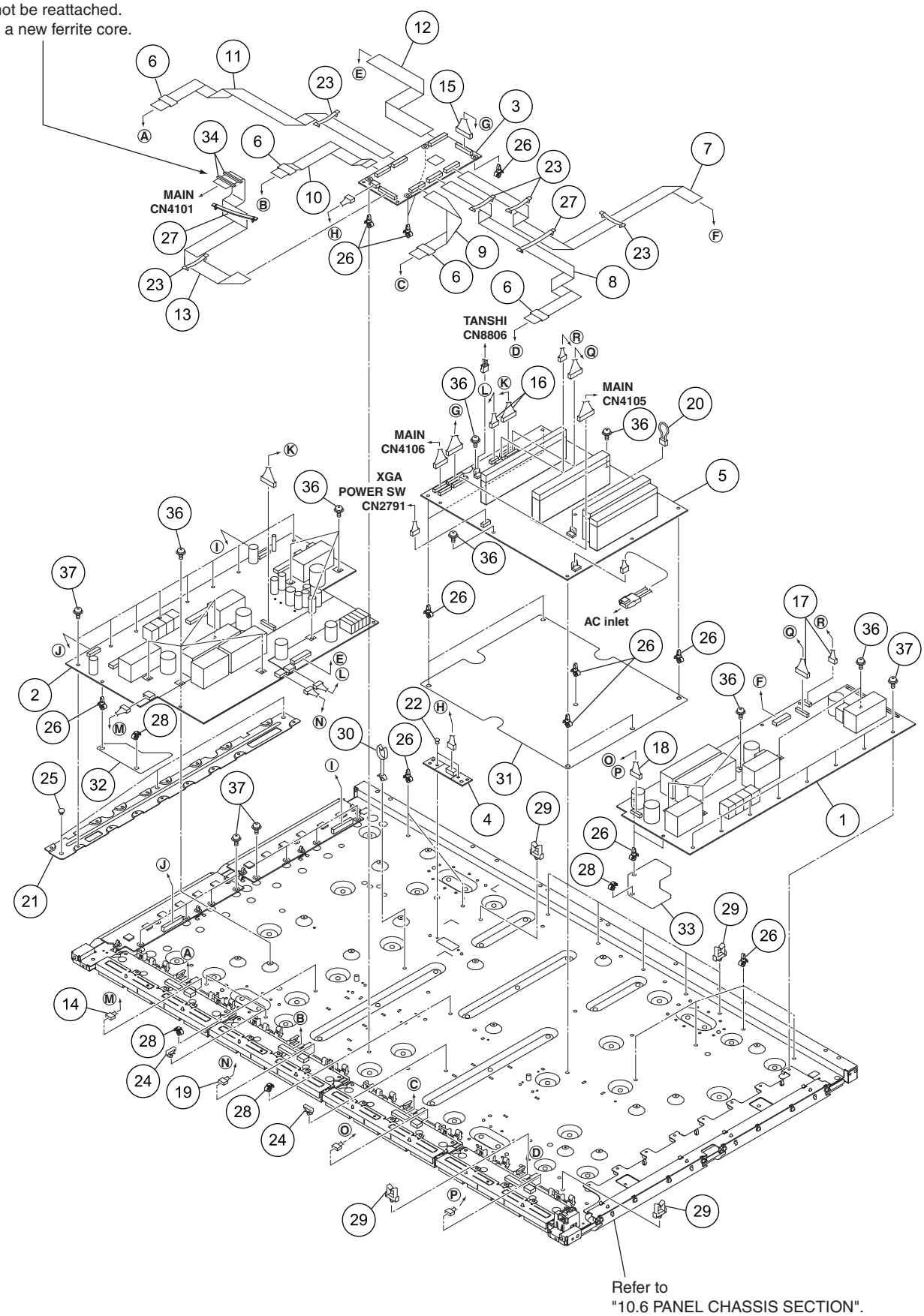


CHASSIS SECTION (1/2) PARTS LIST

Mark	No.	Description	Part No.
	1	XGA POWER SW Assy	AWW1261
	2	Ferrite Core (L1)	ATX1044
	3	Housing Wire (J103)	ADX3536
⚠	4	Fan Motor 80 x 25L	AXM1058
	5	Speaker Box Assy L	AMW1012
	6	Speaker Box Assy R	AMW1013
	7	Front Chassis VL (427)	AMA1020
	8	Front Chassis VR (427)	AMA1021
	9	Sub Frame Assy L (427)	ANA1943
	10	Sub Frame Assy R (427)	ANA1944
	11	Front Chassis H	ANA2083
	12	Fan Holder	ANG2833
⚠	13	Panel Holder V1 (427)	ANG2920
⚠	14	Panel Holder V2 (427)	ANG2921
⚠	15	Panel Holder H (427)	ANG2922
	16	Multi Base Holder	ANG2937
	17	Floating Rubber 80	AEB1427
	18	Ferrite Core Holder	AEC1818
	19	Flat Clamp	AEC1879
	20	Locking Wire Saddle	AEC1948
	21	Mini Clamp	AEC2128
	22	Re-use Wire Saddle	AEC2091
	23	Re-use Wire Saddle	AEC2118
⚠	24	Address Gasket (42)	ANK1877
	25	Gasket 427	ANK1895
⚠	26	Gasket D	ANK1840
	27	Switch Holder (428)	AMR3694
	28	Re-use Wire Saddle	AEC1945
	29	Re-use HL 28	AEC2119
	30	Screw	ABA1313
	31	Screw	ABA1370
	32	Screw	ABZ30P080FTC
	33	Screw	AMZ30P060FTB
	34	Screw	APZ30P080FTB
	35	Screw	BBZ30P060FTC
	36	Screw	TBZ40P080FTB
	37	Screw	ABA1364

10.5 CHASSIS SECTION (2/2)

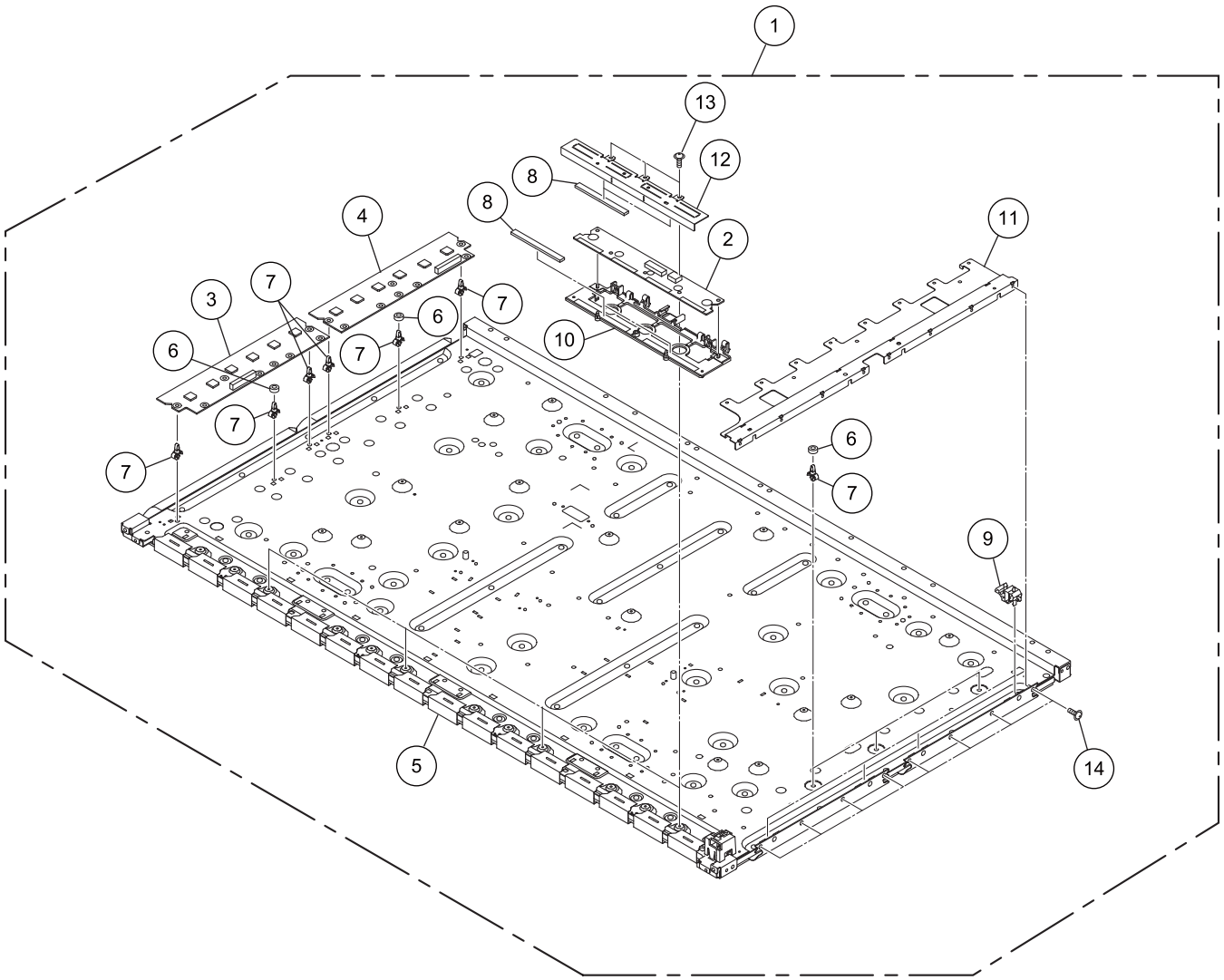
Note:
Once the ferrite core is detached,
it cannot be reattached.
Attach a new ferrite core.



CHASSIS SECTION (2/2) PARTS LIST

Mark	No.	Description	Part No.
	1	42 X DRIVE Assy	AWV2452
	2	42 Y DRIVE Assy	AWW1262
	3	42 DIGITAL Assy	AWW1271
	4	SENSOR Assy	AWW1272
⚠	5	POWER SUPPLY Unit	AXY1157
	6	Ferrite Core (F1 - F4)	ATX1048
	7	Flexible Cable (J201)	ADD1483
	8	Flexible Cable (J202)	ADD1484
	9	Flexible Cable (J203)	ADD1485
	10	Flexible Cable (J204)	ADD1486
	11	Flexible Cable (J205)	ADD1487
	12	Flexible Cable (J206)	ADD1488
	13	Flexible Cable (J211)	ADD1489
	14	4P Housing Wire (J110)	ADX3327
	15	14P&5P Housing Wire (J104)	ADX3522
	16	9P&6/5P Housing Wire (J101)	ADX3534
	17	8P&5P Housing Wire (J102)	ADX3535
	18	8P/4P Housing Wire (J108)	ADX3537
	19	4P Housing Wire (J109)	ADX3538
	20	Housing Wire (J126)	ADX3545
	21	Conductive Plate Y (428)	ANG3082
	22	Nylon Rivet	AEC1671
	23	Flat Clamp	AEC1879
	24	Locking Wire Saddle	AEC1948
	25	Card Spacer	AEC1957
	26	PCB Spacer	AEC1941
	27	Flat Clamp 60	AEC2104
	28	Re-use Card Spacer	AEC2117
	29	Re-use Wire Saddle	AEC2118
	30	Re-use HL 28	AEC2119
⚠	31	Power Sheet (8G)	AMR3708
⚠	32	Y Drive Sheet (428)	AMR3709
⚠	33	X Drive Sheet (428)	AMR3710
⚠	34	Ferrite Core (F11)	ATX1068
	35	•••••	
	36	Screw	ABA1313
	37	Screw	ABA1364

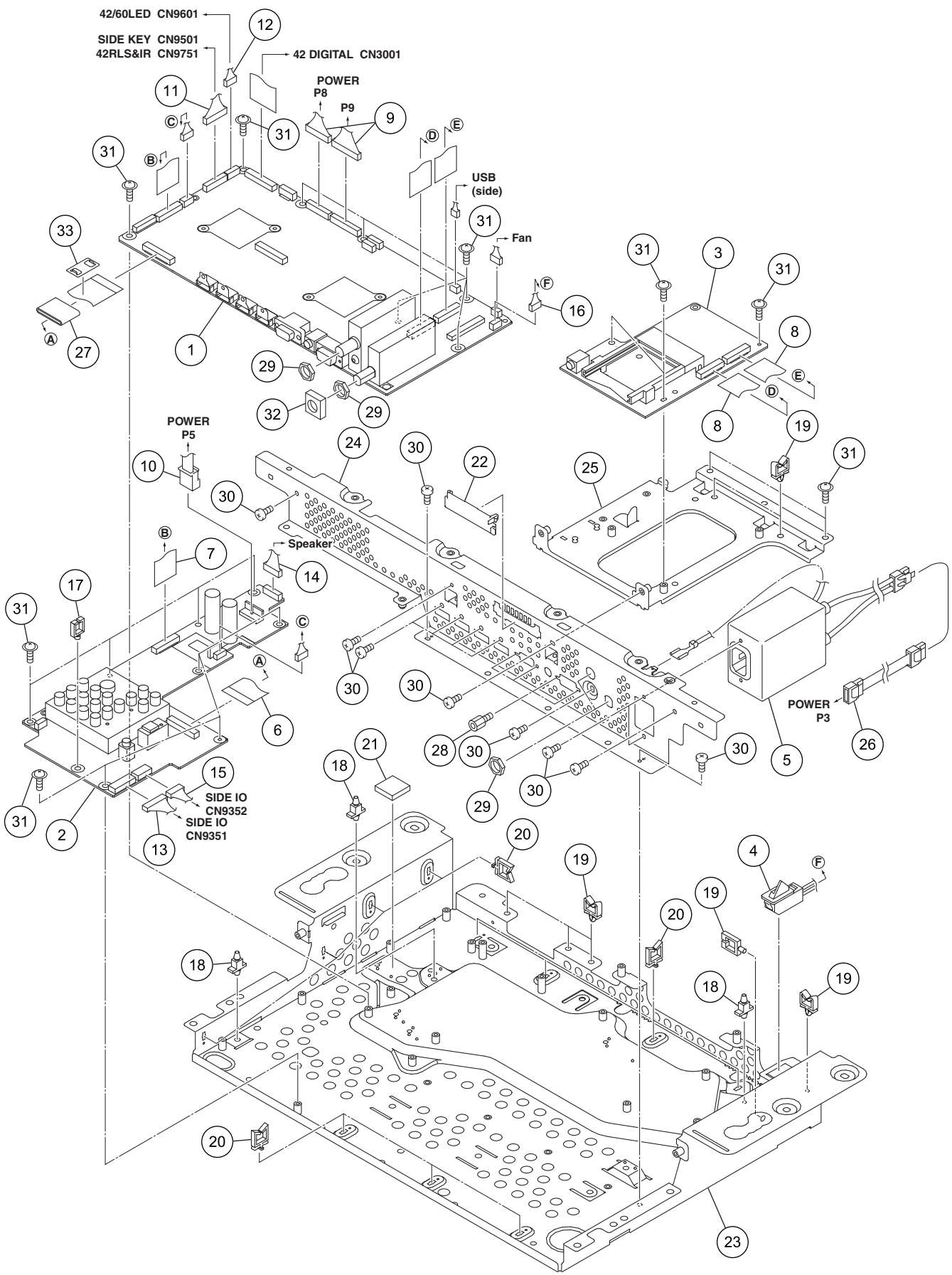
10.6 PANEL CHASSIS SECTION



PANEL CHASSIS SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Panel Chassis (428) Assy	AWU1246
NSP	2	42 ADDRESS Assy	AWV2451
NSP	3	42 SCAN A Assy	AWW1266
NSP	4	42 SCAN B Assy	AWW1267
NSP	5	Plasma Panel (428) Assy	AWU1247
	6	Insulation Bushing 1.5	AEB1482
	7	PCB Spacer	AEC1941
	8	Address Silicone A	AEH1093
	9	Conductive Plate Holder	AMR3446
	10	Address Holder (428)	AMR3707
	11	Conductive Plate X (428)	ANG3080
	12	Address Plate (428)	ANG3084
	13	Screw	ABA1351
	14	Screw	ABA1364

10.7 MULTI BASE SECTION

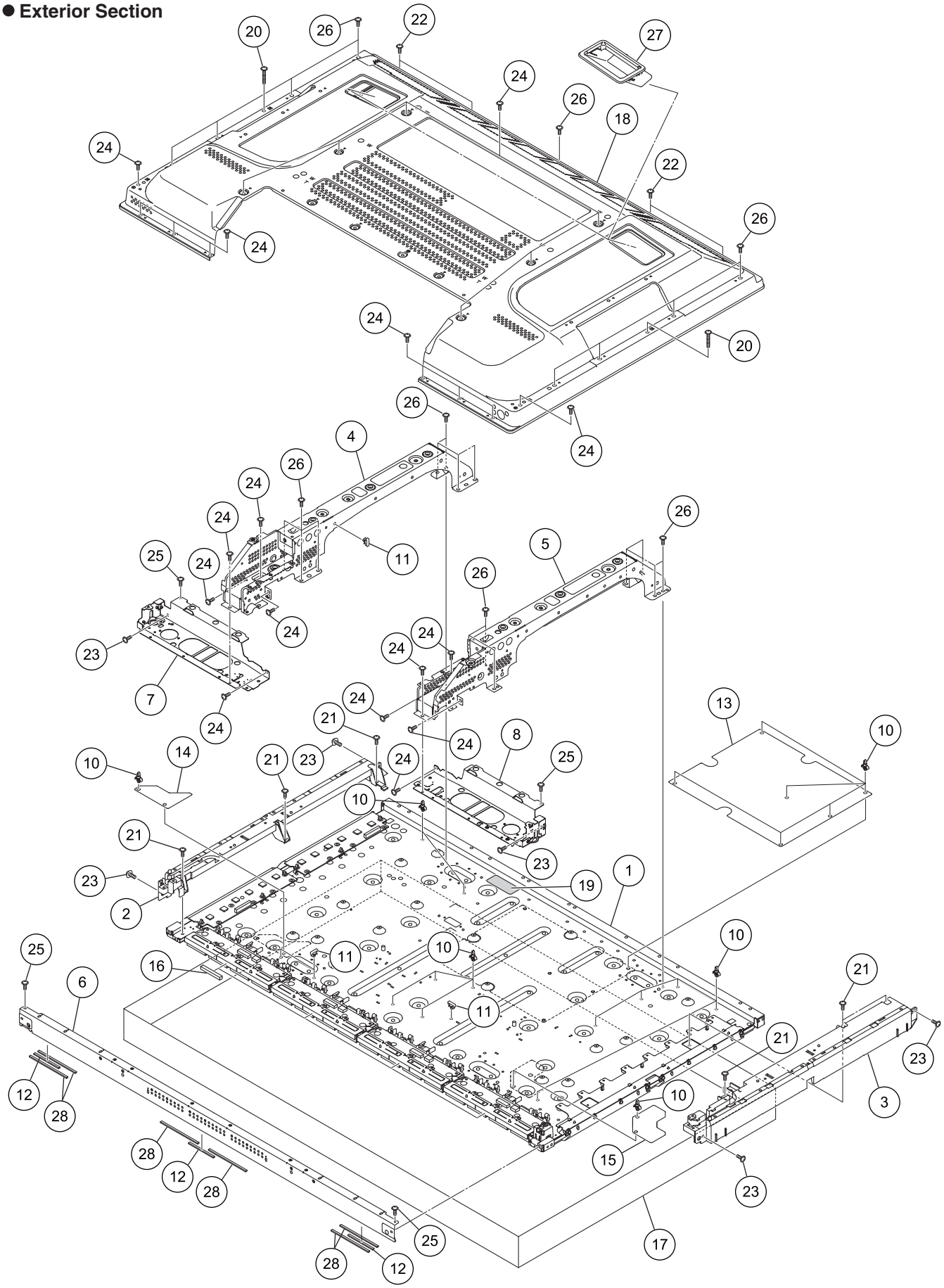


MULTI BASE SECTION PARTS LIST

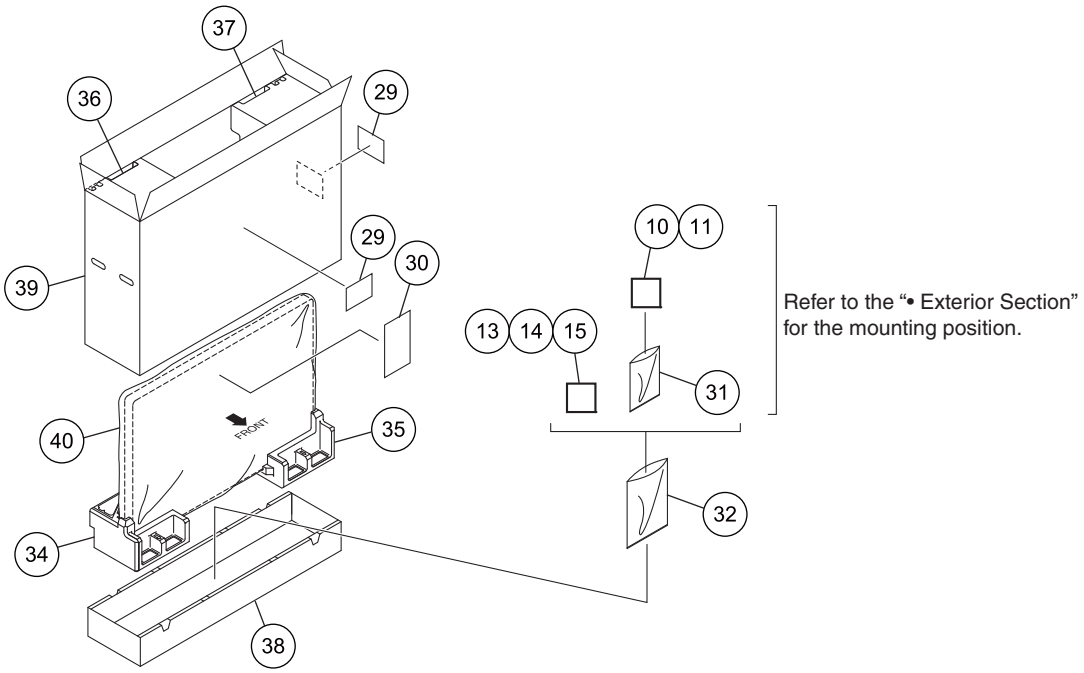
Mark	No.	Description	Part No.
⚠	1	MAIN Assy	AWV2455
	2	TANSHI Assy	AWW1273
	3	POD Assy	AWW1295
⚠	4	Power Switch (S1 : TRAP)	ASG1089
⚠	5	AC Inlet (CN1)	AKP1314
	6	Flexible Cable (J212)	ADD1441
	7	Flexible Cable (J213)	ADD1491
	8	Flexible Cable (J214, J215)	ADD1519
	9	12P&15P Housing Wire (J106)	ADX3523
	10	5P Housing Wire (J107)	ADX3524
	11	11/6/4P Housing Wire (J114)	ADX3539
	12	6P Housing Wire (J115)	ADX3540
	13	11P Housing Wire (J118)	ADX3541
	14	8P/4P Housing Wire (J119)	ADX3542
	15	7P Housing Wire (J125)	ADX3543
	16	3P Housing Wire (J127)	ADX3546
	17	Harness Clip	AEC2130
	18	Locking Card Spacer	AEC1429
	19	Wire Saddle	AEC1745
	20	Re-use Wire Saddle	AEC1945
	21	Silicone Sheet Audio	AEH1143
	22	POD Cover	AMR3542
	23	Multi Base Assy (U)	ANA2102
	24	Terminal Panel A (U)	ANC2440
	25	POD Stay A	ANG2933
⚠	26	Housing Wire (J120)	ADX3322
	27	Ferrite Core	ATX1064
	28	Hex. Head Screw	BBA1051
	29	Nut	BBN1005
	30	Screw	BMZ30P060FTB
	31	Screw	PMB30P080FNI
	32	Gasket UD	ANK1883
	33	Ferrite Stopper	AEC1981

10.8 PDP SERVICE ASSY 428

● **Exterior Section**



● Packing Section



PDP SERVICE ASSY 428 PARTS LIST

Mark	No.	Description	Part No.
NSP	1	Panel Chassis (428) Assy	AWU1246
	2	Front Chassis VL (427)	AMA1020
	3	Front Chassis VR (427)	AMA1021
	4	Sub Frame Assy L (427)	ANA1943
	5	Sub Frame Assy R (427)	ANA1944
	6	Front Chassis H Assy (427)	ANA2047
NSP	7	Speaker Stay L	AND1197
NSP	8	Speaker Stay R	AND1198
	9	•••••	
	10	PCB Spacer	AEC1941
	11	Locking Wire Saddle	AEC1948
	12	Isolation Cushion	AED1324
⚠	13	Power Sheet (8G)	AMR3708
⚠	14	Y Drive Sheet (428)	AMR3709
⚠	15	X Drive Sheet (428)	AMR3710
⚠	16	Address Gasket (42)	ANK1877
NSP	17	Front Case Assy (428 service)	AMB3058
	18	Rear Case (428)	ANE1667
NSP	19	Drive Voltage Label	ARW1097
	20	Screw (3 x 40P)	ABA1332
	21	Screw	ABA1351
	22	Screw (4 x 18)	ABA1353
	23	Screw	ABZ30P080FTC
	24	Screw	AMZ30P060FTB
	25	Screw	APZ30P080FTB
	26	Screw	TBZ40P080FTB
	27	Inner Grip Assy	AMR3434
	28	Isolation Sheet	AED1289
	29	Caution Label	AAX3031
	30	Caution Sheet (8G service)	ARM1369
	31	Polyethylene Bag S	AHG1338
NSP	32	Catalogue Bag	AHG1340
	33	•••••	
	34	Pad (428 B-L)	AHA2668
	35	Pad (428 B-R)	AHA2669
	36	Pad (428 T-L)	AHA2670
	37	Pad (428 T-R)	AHA2671
	38	Under Carton (428)	AHD3586
	39	Upper Carton (428 service)	AHD3641
	40	Protect Sheet	AHG1331

10.9 TABLE TOP STAND

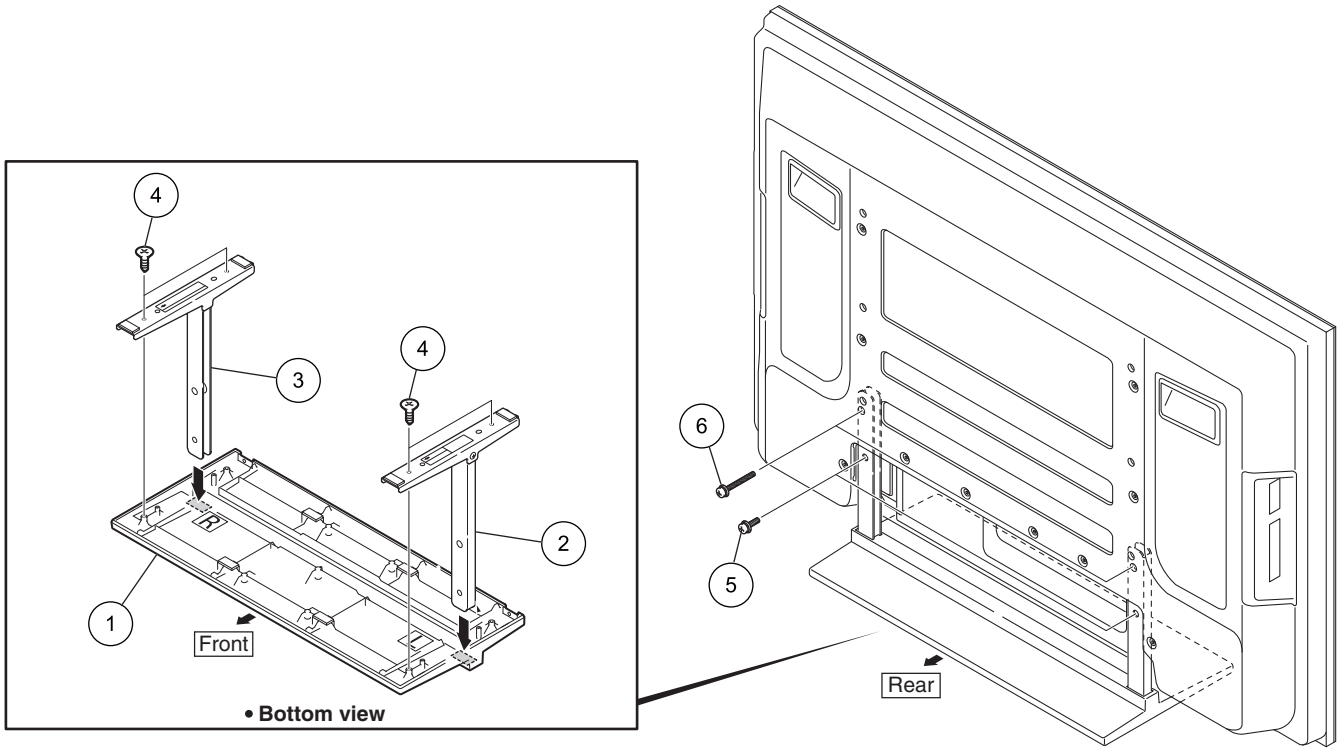


TABLE TOP STAND PARTS LIST

Mark	No.	Description	Part No.
	1	Base Cover Assy	AXY1174
	2	Stand Pipe L Assy	AXY1180
	3	Stand Pipe R Assy	AXY1181
	4	Screw	ABA1357
	5	Screw (M8 x 23)	ABA1371
	6	Screw (M8 x 60)	ABA1372

A

B

C

D

E

F

Changed contents

Mark	Date	Rev. No.	SM Correction No.	Revision	Page
1	22-Jan-07	002	------	Delete the description of the reference service manual.	Coversheet
2	20-Jan-09	003	SCH08025	Correct numbers of the following parts. EXPLODED VIEWS/PACKING SECTION/3 Battery Cover	159